N.Y.S. URBAN DEVELOPMENT CORPORATION

GIORGIO CAVAGLIERI FAIA ARCHITECT 1973

NEW YORK STATE MARITIME MUSEUM

AT THE SOUTH STREET SEAPORT

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november 1973

NEW YORK STATE MARITIME MUSEUM

at the south street seaport & renovation of schermerhorn row fulton & south streets new york city

49
730

Renderings by de Nalovy Rozvadovski

Photographs by Robert Galbraith

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FOREWORD

The New York State Urban Development Corporation, at the request of the New York State Office of Parks and Recreation, commissioned the following study to determine the feasibility of development of a State Maritime Museum in the historic Schermerhorn Row and adjacent buildings.

While the study goes into considerable detail in describing the reconstruction, such detail was necessary in this unique schematic design report. It is a study, however, and is, therefore, subject to change as the development process continues.

We feel the architect has developed a working tool in this report which can be used as a basis for discussion among the many interested parties who are concerned with the project. The thoroughness of the report, particularly in the structural, mechanical, engineering, and cost areas, has led us to feel confident that the structures can be rehabilitated. Additional studies have been conducted by UDC on the economic feasibility of the development, and with these analyses in hand, we feel it is appropriate that this reconstruction begin and that the preservation of the Seaport area proceed.

Edward J. Logue
President & Chief Executive Officer

New York State
Urban Development Corporation

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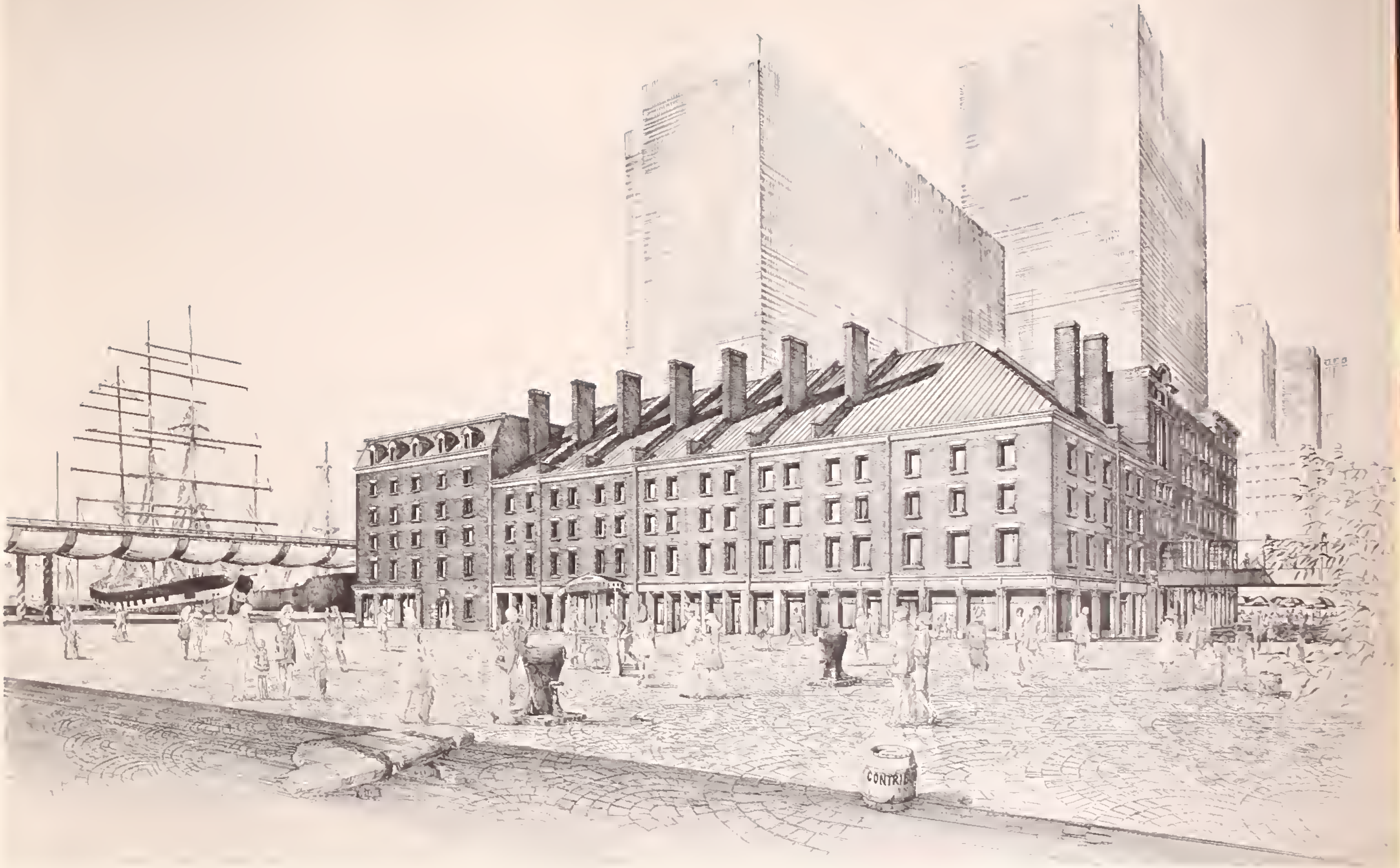

SCHERMERHORN ROW, VIEW TO THE SOUTH

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INTRODUCTION

The purpose of this study is to attempt to identify the work necessary to transform into a completely rehabilitated facility the existing buildings comprising the block between Burling Slip and Fulton Street and between Front Street and South Street. Shopping facilities, offices and the renovated Maritime Museum are intended to occupy the reconstructed spaces.

This is "preservation for reuse" of a group of buildings of historic and urban significance which are still standing. Such preservation and reuse will demonstrate, by architectural and other technical means, that the forms of the past are still valid and viable when properly adapted to the functions of today's life.

Buildings which are the work of our predecessors will take their place in the new urban fabric, proving that forms conceived for now extinct functions can still produce a valid, emotional impact; they will become the tangible proof of the continual evolution of our civilization, with each generation leaving its own mark, and each succeeding generation respecting the best of the previous one. It will be up to us to complete the block with forms which express our time.

The existing gasoline station occupying the South Street—Burling Slip corner will be removed and a new building will be built on that corner; it will be a volume blending with the remaining part of the block, not architecturally similar to the existing buildings but corresponding in a contemporary idiom to both the spirit and the physical demands of the exhibitions it will house.

Two solutions have been studied for such building and are enclosed in the set of drawings attached to the report. Their cost of construction is also estimated as solutions A and B.

The new complex will revive the old Schermerhorn Row. Restoration of the existing parts is intended, but it is not the purpose of this work to create an esthetic complex of historic museum-like quality.

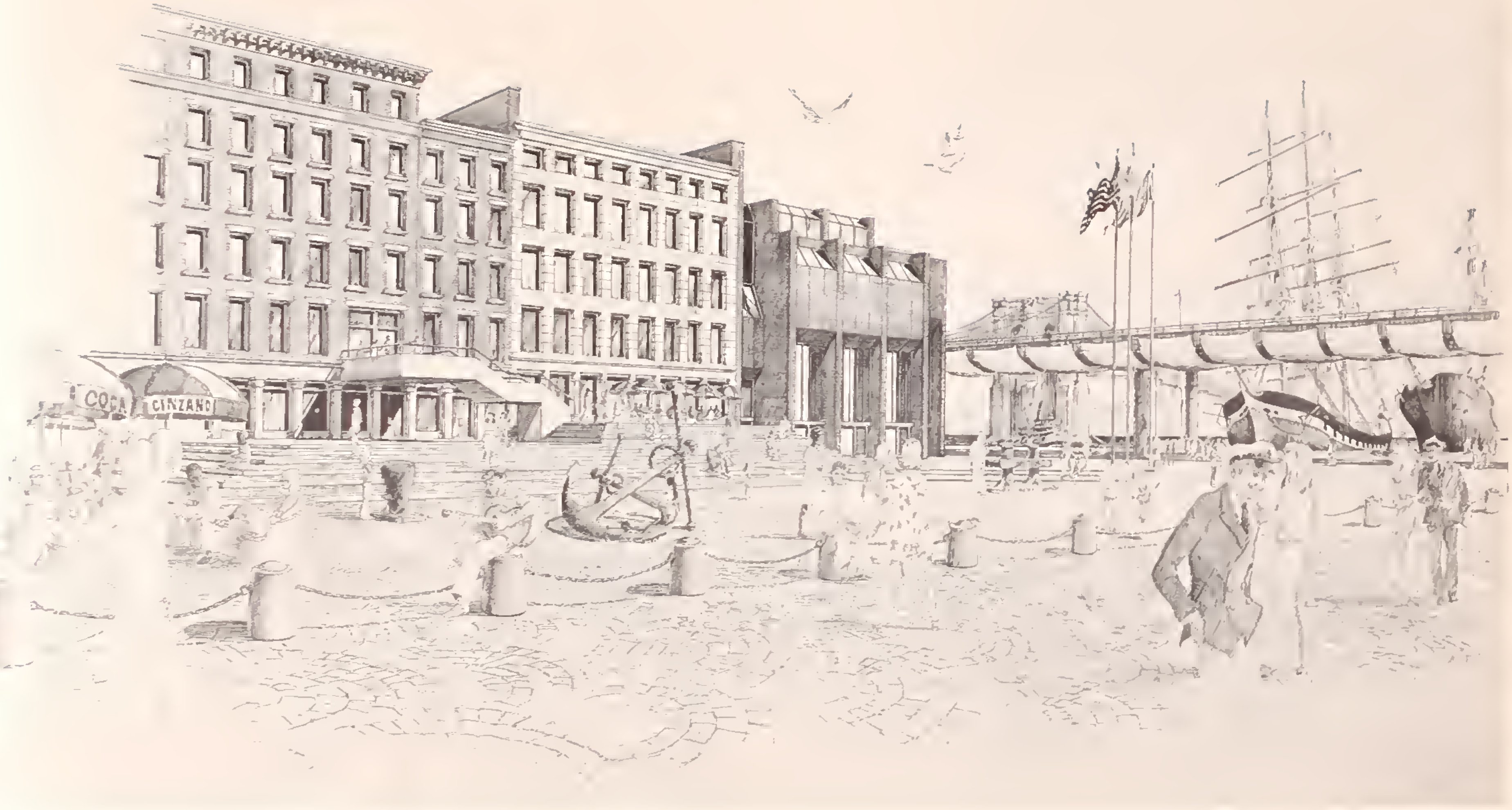
The real spirit of the old buildings will be kept alive by the new uses, by finding for them within the old walls forms suitable to their purpose. On this approach, we believe, rests the entire principle of adaptive use of old landmark buildings.

The mechanical equipment and the fire protection characteristics of the complex will be the dominating factors directing the work intended because both the financial sponsors as well as the Public Authorities are first concerned with the safety of the visitors. Any requirements that may be in conflict with the goal of preserving the standing structures will inevitably be satisfied in contemporary terms.

It is my recommendation that the masonry structures and the shapes of the various buildings should be maintained, but that the openings, the sash, and glass lights be considered contemporary forms. This would permit us to emphasize to the utmost the new commercial qualities desired and intended; also, by giving to the preserved parts the dignity and simplicity which were theirs when the buildings were first erected, we would help to emphasize the educational goal of historic preservation.

It is obvious that today's requirements and today's commercial forms are quite different from those of the early 19th Century when these buildings were built. Certainly the graphic presentation of the commercial interests and the illumination within the city texture are not comparable to what existed or was desirable a century and a half ago. The streetlights, the paving conditions, the open spaces around the block are so different and the surroundings of such a scale that to persist in imitative details would seem to us a caricature of the purposes. We believe instead that a respectful mixture of old and new and a correct structural strengthening of all the parts that can be used in the new context are the real way to prove that a city block which has been left in disrepair and which was abandoned to slum conditions for over two generations is still alive.

Giorgio Cavaglieri



BURLING SLIP, VIEW TO THE NORTHEAST

CHAPTER I

ARCHITECTURAL AND URBAN DESIGN CONSIDERATIONS

A. DESIGN PREMISES

All the existing buildings on the block are of masonry bearing walls with wooden horizontal structures. While related to each other by similarity of facade material and size of openings, those of the Schermerhorn Row are actually individual separate parcels. Each one of them is vertically serviced by wooden stairs not safe by our standards for today's purposes. The roof alignment has been broken by a disrespectful recent alteration of the middle building and by the century-old addition of one floor to the building at the northeast corner. The proposal we recommend, after repairs of the structural conditions, indicates maintaining the variations of the properties through the block except for the recent alterations. We believe this will emphasize the original characteristics—the small size of each of the original enterprises—and reflect the position of the entire block as a unit of historic value in the midst of the high-rise towers of lower Manhattan. On the other hand, we are intending to propose corrections and additions in the spaces previously occupied by the old courtyards and by the gasoline station; to bring into a single legal unit the entire block as one building with different occupancies.

The Maritime Museum will occupy the new corner building with an exhibition hall in the lower part and the Maritime Museum Library on the upper floor, thus attracting the public and continuing the shore presentation of sailing and shipping materials. Museum exhibits will also occupy the remarkable attic space of the old Schermerhorn Row.

Restaurants will remain, as they have been for over one and a half centuries, in the northeast corner; commercial space will be distributed throughout the buildings, stores wherever possible, suitable offices at the other levels. The proposed solution emphasizes a two-level concourse which will tie together the ground floor stores, the Museum access, and the restaurants, thus acting as a catalyst for income-producing areas.

B. BUILDING CODE REQUIREMENTS

The main difficulty which has to be resolved for the concept described is represented by the commitment to comply with either the New York State or the New York City Code.

As the majority of the buildings antecede both codes for more than a century, rigid compliance with rules set for a completely different goal is impossible.

If we examine the New York State Code in relation to the purposes to which we wish to put the entire block, we find that the occupancy classifications affecting the interpretation are the following: "Business," "Mercantile," and "Assembly."

As the main occupant, if not in total area, certainly from the point of view of importance, is going to be the Maritime Museum, it would seem that the limitations put by the Code to a structure of "Ordinary" construction (that is, non-fireproof with masonry bearing walls and wood structural horizontal members) for "Assembly" will have to apply to the building. This would mean that no more than two stories and no more than 40 ft. in height could be accepted. As our buildings are presently of 5-, 6-, and even 7-story height, the preservation of the envelope enclosing them would make compliance with the Code completely impossible. It would be necessary therefore, either to work under a completely different set of rules, or to obtain from the proper legal authorities waivers of the accepted regulations.

An analysis of the limitations established by the New York City Building Code seems to foresee instead the possibility of buildings of non-fireproof construction reaching heights of as much as 75 and 85 ft. with 6 or 7 floor levels, even for occupancy of the Assembly group (F-3) suitable to Museum spaces.

Of course, the application of the New York City Code to this project will mean the acceptance of a broad and frequently costly set of definitions, for stairways and exits as well as for walls and floors separating spaces of different occupancies.

We have attached to this study a detailed analysis of the paragraphs and definitions involved.

At the conclusion of our analysis, however, the recommended plans have been developed as complying with the New York City Building Code. Some of the provisions will demand entire rebuilding of some horizontal levels and readjustment of the current height of the spaces. It will also be necessary to insert some steel framework set on foundations independent of the existing ones of the walls, to avoid the likelihood of settlement and cracks in them.

C. EXISTING CONDITIONS

1. Historic Considerations

A Preliminary Historical Study of land uses for the entire block with data on the land, the streets, the types of businesses, the dates when each building was built, and the successive owners with exact addresses of each original property appears in the Report on the Maritime Museum prepared by the New York State Historic Trust, printed in 1969 and reprinted in 1972.

We are referring to such publication for any research, bibliography, and information of an historical character.

2. The Existing Buildings in Relation to Their Surroundings

Presently the buildings are occupied by an assorted mixture of residential studios for artists, the South Street Seaport offices and exhibition areas, several commercial enterprises originally related to the fish market, and some restaurants and food shops—one of them of considerable renown (Sweets).

As the surrounding lots have become almost completely high-rise office buildings and as the Fulton Fish Market has moved out of the area, most of the present occupants have become unsuitable or at least financially unrelated to the general conditions of the area as it is expected to develop. The only exception, of course, is the South Street Seaport. Hopefully, Sweets' and Sloppy Louie's restaurants may also continue in the rehabilitated quarters.

A large number of tenants who occupy the present dilapidated quarters do so nowadays because of the low rental demanded by the decaying spaces.

3. The Existing Buildings and Their Present Conditions

The existing buildings occupy the entire block with the exception of a vacant lot at the southeast corner, at the crossing of South Street and John Street (Burling Slip). The buildings are presently occupied in part or in total; they show conditions of disrepair of various degrees and nature.

A general analysis may be summarized as follows:

171-167 John Street: occupied by the Baltimore Copper Paint Company, they are generally in good condition. They are 6-story buildings with masonry bearing walls and wood horizontal structure on large timber posts. The ground floor level is lower than the street level and, according to the present users, it is occasionally flooded due to river water backup. This endangers the base of the timber posts. The brick facade, with interesting cast iron columns at the ground level, is punctured by a regular fenestration with wood double hung sash. At the main floor (second level), the openings have been filled with rather awkward glass block infills. A fire escape with its balconies interrupts the facade design. In the center, an existing freight elevator penthouse rises above the roof. A Building Department document in the possession of the present users records permission for a Live Load of up to 200 lbs. per sq. ft.

165 John Street: a 5-story building in reasonably good condition with brick front over cast iron piers at the ground floor. The horizontal structure is of wood between brick party walls, the window sash of the upper four levels are double hung and the ones of the three upper floors seem to be the original ones with six-over-six lights. The building, although in sound condition, is unoccupied.

159-163 John Street: a 6-story building, probably designed at the same time as 165 with similar structural characteristics. A sixth floor was added in 1917; probably at that time, the wooden window sash were completely re-glazed with larger lights, either one or two per sash. Stairway bulkheads and a steel water tank set over the roof dominate the present facade appearance.

As a general statement, although all are of clumsy manufacturing appearance, these buildings on John Street are in sound architectural condition.

181 Front Street: is the 6-story front of 159 John Street, which turns the corner. The fire escape required under the present occupancy is connected also to the adjoining 189 Front Street building; of similar original construction but visually more poorly maintained and with some damage to the brick cornice at the line of the roof, above the fifth floor. The party wall, which rises to enclose the previously mentioned sixth floor addition of the corner building, shows signs of exposure, age and disrepair.

191 Front Street: seems part of the same group; it has a fire escape of its own on the front and has been the worst maintained of the three; the roof cornice is completely torn, part of the brick work at the fifth floor has completely collapsed. Very clumsy repairs were made, hardly capable of weather protection.

193 Front Street: a building of different design with sheet metal moldings and decorations enclosing the upper two floors, the fifth one with a very high ceiling. The elegant proportions of this metal front of the fifth and sixth floors are crowned by a heavy cornice of the late 19th Century which dominates the entire block front. The rusty metal is in a state of disrepair; its design may have to be rebuilt in order to maintain the original features.

195 and 197 Front Street: are already part of, and represent the northern facade of Schermerhorn Row. The condition of these buildings as well as the entire row from 4 to 18 Fulton Street inclusive can be described as one of grave disrepair; the masonry has been occasionally repainted and seems to have lasted so far in a condition preventing collapse, but many leaks have appeared throughout in various places due to lack of proper jointing and the obsolete and damaged gutter and rain leader system. There are patched roofs, broken windows, split and rotten wood lintels, etc. There are fire escapes at 197 Front Street and at 14, 10, 6, and 4 Fulton Street. All are obsolete in design, the supporting brackets look precarious and are rusty. All window sash are wood and seriously damaged by age. Most window lintels on the front portion seem to be the original stone ones, but in some cases they were rebuilt with brick and covered with stucco to imitate the stone. The roofing material is composition roofing or tar paper with obvious

haphazard patches. Some irregular sky lights and dormers were opened into the roof surface at different times.

12 Fulton Street: a floor (the fifth one) was added above the roof line. All the other buildings of Schermerhorn Row have cornices, store fronts and sash of irregular design and poorly executed character. The facade of 4 Fulton Street shows signs of a settlement which has cracked the masonry and broken and put out of line all lintels of the upper floors.

2 Fulton Street: is the eastern front of the corner building at 93 South Street. A sixth floor was added to it which was probably the cause of the settlement at 4 Fulton. The masonry at the front is in reasonable condition; the window sash show the same age and deteriorated character of the entire Fulton Street Row.

92 and 91 South Street: are also in viable structural condition but with decayed window sash and indications of disrepair and poor maintenance.

D. THE RECONSTRUCTED BUILDINGS AND THEIR USE

1. Architectural

As already indicated, the block will enclose the new Maritime Museum, some restaurants, a number of retail stores, and rentable offices.

The scheme as suggested will permit access to the entire block from three sides, Fulton Street, John Street and Front Street. While all spaces can be reached from any of the entrances, each one of them has character and appearance of its own.

The entrance from John Street leads directly into the main exhibit hall. It will probably be used by all the tourists and visitors who will come to the Seaport Museum, visit the different ships and be attracted later into the building for study or more detailed analysis of relics, models, books, etc.

The Fulton Street entrance will also lead to the Museum and to the large ground floor exhibition hall after crossing the lobby of the two-story arcade which will constitute the main economic attraction of the rebuilt block. It gives access to both floors where the restaurants are expected to be.

Due to the importance of the address, it is intended to create here a two-story-high lobby which will emphasize the accessibility and attractiveness of the distributed facilities, while at the same time it will lead the public to Schermerhorn Row, the rebuilt century-and-a-half-old historic attraction.

The third entrance, from the lobby on Front Street, while connected directly to the others, is in reality the business entrance to stores and offices and as such should bring into the building a large number of people who may have business there, not only as visitors, but also as residents of the lower Manhattan community.

Two systems of vertical communication are strategically located into the block: one, a pair of elevators which will serve the business establishments and which is clearly available from the Front Street lobby; the other one, a pair of elevators at the crossing of the main circulation of the entire horizontal system. One of these elevators will become the obvious Museum passenger service; the other one will be a service car, which can also be used for passengers, and which will have access to all Museum levels and to the restaurants for their service.

The various facilities in the building will probably have different timetables; for this reason, it is justified to believe that the service elevator will not be needed at the same time by the restaurants or by the Museum.

The horizontal spine, which at each floor services all the spaces, creates the unified element of the layout. At the ground and second levels, it is in itself the shopping arcade justifying the economic expectations of the project; at the upper levels, it becomes the corridor tying together all the stairways, fire exits, etc.

Sets of doors are indicated in strategic positions to permit various security arrangements; they have been indicated with assumptions that seem to be justified at this time. As they affect the floor levels, exits, and stairwells, any desired variation in them will have to be examined with great care.

It is obviously impossible, at this time, to anticipate the specific use of each individual space beyond the general indication given in the plans; it will be possible to make many adjustments to suit different tenants and to suit areas of occupany for them, either for small units or for large units.

All the reconstructed buildings are brick buildings and so they are intended to remain. The street facade masonry surfaces will need careful repointing, and, in many areas, some patching and rebuilding with brick reproducing the old ones and with thin mortar joints fitting the pattern and matching the existing one.

The masonry walls facing the inside courtyard to a large extent will have to be rebuilt due to their deterioration and, in many places, collapsed conditions. The new layout anticipates enclosing the complete block; new masonry walls will have to be erected to suit the new arrangements. These will be of exposed brick where the architectural appearance so requires and of plastered or exposed concrete blocks wherever suitable.

All the existing openings are presently enclosed with very old wooden sash, mostly double hung or, at the street level, of haphazard construction.

In many instances, the dimensions of the masonry spandrels are inadequate to furnish the desired fire protection as indicated in the Code Analysis. It will be therefore necessary to redesign the sash in order to obtain a spandrel of suitable fire rating within its visible opening. It seems appropriate that the new appearance of the openings identify the mercantile characteristic of the buildings in contemporary terms; to reduce the cost, most of them can be glazed with panes set in vertically pivoting sash frames of anodized bronze-color aluminum. This will be suitable to the purpose and esthetically unobtrusive. The use of heat-resistant glass would eliminate tenants' need for curtains and blinds which could conflict with each other. Pivoting sash is to be provided for cleaning purposes.

The ground floor structural elements of the facade are presently a mixture of patchwork and fillings done through the years by the various tenants. Some parts of the original cornices and architraves remain, although considerably damaged and, in part, altered over the original cast iron columns. Some of the existing vertical supports will have to be replaced and substituted by new cast iron columns or pilasters matching the original ones which remain. Within the large openings which were intended to frame the show windows, new sash of bronze-color anodized aluminum can hold large sheets of clear plate glass.

It is intended to arrange, behind them, a valance related to the new hung ceiling levels, suitable to hold the signs of the new tenants. The graphics must be carefully controlled and so will the illumination of the signs, if the spaces can be fully useful to the tenants and at the same time not deface the design of the building facades.

The roof line of the various buildings will be maintained at its present level and with its present variations.

Schermerhorn Row will have the large pitched roof rebuilt, covered with TCS (Terne coated stainless steel) metal roofing and with the repaired and reconstituted lines of the parapet party walls which originally separated the various properties. Most of these will have to be rebuilt with their slate coping. Copper gutters and downspouts will be rebuilt.

The mansard roof of the northeast corner will also be rebuilt and re-roofed, keeping its end-of-19th-Century design. The dormer windows on this particular part of the block create a special interest and add a picturesque effect to the entire development.

The facades on Front Street need a great deal of repair, and the moldings and decorations of the upper part of 193 Front Street will have to be reconstructed for the most part. The facades of the buildings on John Street, all of a late 19th Century vintage, are in good condition and will be brought back to their original appearance; the only change will be the previously described design of the window sash which is suggested by the new use of the buildings and is needed to comply with code regulations.

At the southeast corner, as already indicated, the block will be completed with the construction of a new building for the large exhibition hall of the Museum and the Museum Library. This volume will create the link between the part of Schermerhorn Row which was transformed in the 1860s and the warehouse buildings of the end of the 19th Century which face John Street.

Two different solutions have been studied for the corner building, suitable to a slightly different program. For solution A, the Schermerhorn Row's original gutter line has been the determining factor in setting the height of the new volume on South Street. At the same time, the six-story-high warehouse building on John Street, which the new volume adjoins, suggests higher roof lines. The new design has been conceived with a step-down roof which permits the connection of these two levels and which gives the opportunity for a stepped terrace that can be used not only for an outdoor cafe—serviced from the other restaurants and with a view of the ships anchored nearby—but also as an amphitheater for dramatic presentations or outdoor exhibits.

For solution B, the Schermerhorn Row's higher gutter line of the mansard roof of 92 and 93 South Street at the corner of South and Fulton Streets has been the determining point of departure for the design. The roof cafe has been partly enclosed to permit all-year-around operation.

The material used for the facades will be brick similar in color and texture to the brick of Schermerhorn Row. The large glass openings are designed to attract the visitors coming to the South Street Seaport after having viewed the ships at the docks. The access from Fulton Street, as well as from Front Street, puts Museum visitors in sight of the shopping arcades which form the economic nucleus of the development. The passenger and service elevators tie the low levels to the upper ones in the reconstructed buildings. The openness of the stepped-up spaces in both solutions inside the building makes the ground floor visitors aware of the continued exhibits in the upper levels and the attic spaces of Schermerhorn Row.

2. Structural

It has been indicated that all the existing buildings are of ordinary construction with wood floor beams carried by masonry walls. Many of the window lintels are timbers covered by stucco facing over lath.

While it is intended to examine these lintels one by one when working drawings will be prepared, we may assume, at this time, that only a fraction of them, perhaps 30%, will need the installation of new angle iron lintels and the rebuilding of their stucco exterior. A schematic analysis has been made of the structural capabilities of all the wood beams; most of the floor structures and surfaces will need re-leveling, some realignment, and repairs, but will be able to support the live load assigned to them by the new users (50 lbs. per square foot for commercial offices and 75 lbs. per square foot for showrooms).

Wherever necessary, the insertion of extra wood joists will resolve the live-load needs (perhaps in 20% of the areas).

In order to make a conservative, safe assumption on the stresses the lumber used in the buildings of Schermerhorn Row is able to absorb, we have assumed values of 700 or 800 lbs. per square inch for the verification of the joists' loading stresses.

We have also analyzed the live load to which we assume all the buildings may have been subjected in order to evaluate the bearing capabilities of the existing masonry walls and of the ground under them. The existing joists through most of the buildings suggest 50 lbs. per sq. ft. With a possible live load of 50 lbs. per square foot for the thickness of brick walls of two typical conditions, we have found a ground stress of approximately 4 tons per square foot and a masonry stress less than 100 lbs. per square inch.

A problem arises for the Museum areas where the Public Assembly definition demands 100 lbs. per square foot. In order to obtain assurance of this capability, a complete new system has been devised. By the insertion of pairs of columns with independent footing alongside the intermediate masonry bearing walls, we would be able to sustain the loads of the two floors of Museum space without disturbing the foundations of the existing masonry walls, thus without inviting new settlement on ground which has adjusted to almost two hundred years of loading.

The present schematic design and estimate are prepared with the described characteristics. It is conceivable, however, that with proper field loading tests, it might be proved that the present structure can withstand the desired loads. Should this be the case, a saving will be obtained from the anticipated cost of construction.

All new areas will be completely of fireproof construction.

The two-story commercial arcade and concourse will be contained between masonry walls, partly new and on new footings, partly existing, rebuilt and strengthened as necessary.

The horizontal levels of the arcades and hallways on all floors will be created with reinforced concrete slab and steel girders as needed.

The stairwells measured to comply with code definitions for the number and type of occupants will always be enclosed in fireproof masonry shafts and will lead to fireproof exit passageways.

Special attention will have to be given to the 171-167 John Street building where, as already mentioned, the lowest level is sometimes flooded by the high river tides. The timber columns throughout this floor level will have to be removed and substituted with concrete piers on new footings. If complete weather-proofing of this floor level is desired, it will be possible to create a new pressure-resistant slab and concrete retaining wall all around the space within the existing volume. The cost and loss of area all around will have to be accepted.

The new exhibition-library building will be carried by a reinforced concrete framing system with slabs and girders on columns, all of which will be, of course, part of the fireproof new structures. The levels of the suggested exhibition hall and Museum Library and roof terrace relate to the parts of the museum in the old buildings and encourage visitors' circulation.

3. Options for the Location of Mechanical Equipment Space

Two solutions are also proposed for obtaining the space needed for mechanical equipment. This cannot be obtained within the existing buildings which have either no basement at all or have under ground only spaces of very limited headroom. Obviously, we would consider it visually non-attractive and non-economical to use for mechanical purposes ground floor or upper floor areas within the existing buildings.

In both solutions A and B the mechanical equipment space has been located in a basement level under the new exhibition hall. This portion will have to be built as a reinforced concrete box sunk into the ground to withstand the water pressure due to the hydraulic level to which the location is subjected at some high tides during the year.

A solution has been considered and developed for locating the mechanical equipment room in Burling Slip hidden under and enclosed inside raised stepped platforms set on the Plaza. With this device, the danger of flooding of the equipment contained in a space lower than the exceptional high tide line will be abolished. The cost of the special precautionary measures in constructing a basement beneath the new corner building can be saved and the funds allocated to more visible purposes. This solution, however, is tied to ownership and development of an area outside the property lines of this project.

4. Floor Area Calculations

SCHEME A	Cellar	Ground	Second	Third	Fourth	Fifth	Sixth	Seventh	Total Areas
Museum	0	4,755	780	0	16,880	15,220	2,000	0	39,635
Offices	0	0	0	16,400	7,980	7,980	10,400	3,300	46,060
Stores	0	14,870	15,190	0	0	0	0	0	30,060
Dining (enclosed & open air)	0	3,550	3,670	0	0	0	2,380	0	9,600
Arcades & Hallways	0	4,885	2,965	1,410	1,410	1,410	2,190	0	14,270
Store Bsmt.	1,960	0	0	0	0	0	0	0	1,960
Mech. Rm.	4,755	0	0	0	0	0	0	0	4,755
Walls/Stairs/Toilets/Etc.	1,150	4,610	4,225	4,580	4,530	4,410	3,530	2,670	29,705
GROSS AREA	7,865	32,670	26,830	22,390	30,800	29,020	20,500	5,970	176,045
CUBATURE	85,470	387,360	282,630	203,720	304,135	335,750	158,280	45,720	1,803,065

SCHEME B	Cellar	Ground	Second	Third	Fourth	Fifth	Sixth	Seventh	Total Area
Museum	0	4,595	815	0	15,630	15,620	2,000	0	38,660
Offices	0	0	0	16,400	7,980	7,980	10,400	3,300	46,060
Stores	0	14,870	15,190	0	0	0	0	0	30,060
Dining (all enclosed)	0	3,550	3,670	0	0	0	2,935	0	10,155
Arcades & Hallways	0	4,885	2,965	1,410	1,410	1,410	2,190	0	14,270
Store Bsmt.	1,960	0	0	0	0	0	0	0	1,960
Mech. Rm.	0	4,900	0	0	0	0	0	0	4,900
Walls/Stairs/Toilets/Etc.	520	4,610	4,225	4,580	4,530	4,410	3,530	2,670	29,075
GROSS AREA	2,480	37,410	26,865	22,390	29,550	29,420	21,055	5,970	175,140
CUBATURE	28,410	436,360	282,930	203,720	316,135	353,970	184,760	45,720	1,852,005

E. DEVELOPMENT OF BURLING SLIP

Burling Slip is the space south of the block of Schermerhorn Row. The vehicular traffic is expected to come north on South Street and turn west on Burling Slip to reach Water Street. This traffic will be the southern borderline of the pedestrian space which envelopes the several blocks of the South Street Seaport Development.

At its western end this open area is bordered by the future building of the Telephone Company; at its eastern end by the water and the ships exhibited there.

The entire space, when the new building of the Maritime Museum is completed, will become the open link between the exhibitions on the water and on the piers, those inside the new Maritime Museum building, and, through the commercial arcade, those inside the Schermerhorn Row buildings.

The use of the plaza as an adjunct and complement to the Maritime Museum and its exhibitions seems to create not only a natural sequence, but actually a necessary development.

The treatment of this area is directly related to the use of the interior spaces in the building block, as well as to the activities which will develop toward the water.

Some conditions exist which suggest uses and activities for specific parts of the buildings, as well as of the plaza:

1. The decision to maximize commercial retail use in the buildings in order to obtain the utmost income advises connection of the shopping arcade at the second level to the future department store (Korvette in the Telephone building to the west) and also gradual access from and to the Plaza for mixing and unifying the shoppers and the visitors to the Museum and to the ships.

2. Presently the Telephone building has obtained rights of easement for its service loading berths at the western end of Burling Slip. If this decision is final, some element should screen the truck parking area from the largest part of the future Burling Slip Plaza; it may then be advisable and useful to obtain mechanical space at a level above the high tides: a series of stepped platforms meeting different levels of the commercial development within the block add interesting opportunities of access by the public to the second floor level of the commercial arcade and provide mechanical space under the plaza. One of the solutions, studied for the development of Burling Slip has considered this possibility.

3. It is our conviction that the abolition of the truck space at the western end of Burling Slip would considerably improve the economics as well as the appearance of the environment. It is our suggestion that arrangements be made with the Telephone Company building owners for relocating the loading berths in such a way that the western end of Burling Slip becomes a retail commercial frontage. If these arrangements are successful, it may be interesting as well as useful to have some change in level in the plaza so that retail shops in the arcade of the second floor may be easily reached from the outside. Moreover, a restaurant or cafe on the middle level of the center buildings could face the terraces and overlook the changing exhibitions on the plaza.

This is the alternative we have chosen to develop in model form; it seems to have the best economic and use possibilities.

On the model is also indicated a possible covered bridge between the second level of the Telephone Company building where Korvette is expected to be located and the main Front Street lobby of the shopping arcade.

With this suggestion, the Telephone Company building could gain a great deal in attractiveness and value for its property on Front Street.

CHAPTER II

MECHANICAL AND ELECTRICAL CONSIDERATIONS

A. EXISTING MECHANICAL CONDITIONS

1. Heating, Ventilating and Air Conditioning

Existing heating systems are totally inadequate in some buildings and non-existent in others. Spaces are heated by gas-fired cast iron sectional radiators. Some buildings have boilers and are partially heated by radiation. Most unoccupied areas on upper floors have no heating facilities.

Except for a few completely obsolete package air conditioning units and cooling towers and a few window units, there is no air conditioning in the existing buildings.

Ventilation is generally accomplished by infiltration through windows and doors. Some interior rooms (without windows) have no means of obtaining any ventilation. Restaurant exhaust systems are presently in use with fans located on low roofs in rear of buildings.

Since heating, ventilating and air conditioning systems are totally inadequate and not up to today's standards it is recommended that all existing equipment be removed.

2. Plumbing and Drainage

In general most plumbing fixtures and specialties are antiquated or inoperative. Each building is arranged with individual water and gas services with meters and individual house sewers.

Although some buildings have inside leaders, most buildings have exposed leaders and gutters. Leaders and gutters are in poor condition with some leaders ineffective.

Since this area is frequently flooded during high tides and heavy rains many buildings have installed sump pumps at the ground or lowest level of the structure.

Reuse of existing piping would be difficult and not advisable because of the obsolete condition of piping; location and arrangements of existing piping are different than final requirements and it would be necessary to update systems to present code requirements.

Some of the buildings have individual gas-fired domestic hot water heaters which are operative.

It is recommended that all existing plumbing and drainage be demolished and removed. Leaders and gutters should be repaired and or replaced as required to maintain the architectural integrity of the existing facades.

3. Electric

Each building is presently served by a separate electric service. In general the existing building wiring is a conglomerate of facilities modified over the years with each successive change in occupancy. Existing lighting facilities are a reflection of the mixed downgraded use of the properties. In many of the unused areas there are no lighting facilities.

Existing telephone wiring throughout the buildings is exposed. Services are presently exposed through the rear courtyards of the buildings.

It is recommended that all existing electric and telephone facilities be removed.

B. NEW MECHANICAL SYSTEMS

1. Heating, Ventilating and Air Conditioning

The heating, ventilating and air conditioning systems for the reconstructed building will be located in one central mechanical room in close proximity to the steam, electrical, gas and water services. Central plant will provide the necessary heating and cooling equipment utilizing purchased steam for the entire building. The cooling tower will be set on the roof in an area where new structural work is required and where the outline of the existing roofs would not be damaged or changed by the installation.

Analysis of the heating-cooling requirements of four different occupancies (museum, commercial space, offices and restaurants) with varying hours of operation and requirements indicates that a totally flexible system with provisions for simultaneous heating and cooling is needed. By providing chilled water risers for cooling and hot water risers for heating to the commercial spaces, offices and restaurants by means of a centrally located utility trench and outside air vertical shafts, comfort heating, cooling and ventilation can be obtained. Each tenant will connect to the services and plan their installation to suit their individual requirements. Museum areas in the new and reconstructed buildings will be heated, cooled and ventilated from central air-handling systems in a manner that will not affect the flexibility of changing exhibits.

Details of the new work necessary for each part of the building appear in the chapter containing Outline Specifications.

2. Plumbing and Drainage

Analysis of the plumbing and drainage requirements for the new and reconstructed buildings indicates the necessity for adaptable systems to serve the four functions of the complex including commercial spaces, offices, restaurants and museum. Domestic hot water will be generated in the central plant and will be distributed with cold water via a common centrally located trench to risers. "Wet columns" with capped outlets for water, vent piping and sanitary drainage will be provided in the rear of commercial spaces, offices and restaurants to serve the individual needs of the tenants.

Details of the new work necessary for each part of the building appear in the chapter containing the Outline Specifications.

3. Electrical

The electrical system of the reconstructed and new buildings will have a central electrical service as required by Code. Due to the differing requirements and operating hours the individual stores, offices and restaurants will be separately metered.

Show window lighting for all stores will be kept uniform in order to maintain the cohesiveness of the block. It is suggested that the stores be lit with surface mounted fluorescent fixtures in order to maximize headroom. Each store will have a separately metered electrical feeder.

In order to provide a flexible arrangement for office spaces, surface-mounted metal raceway is provided for use of business machines and telephones; each office will have an electrical panel located in the rear of space to suit individual electrical requirements.

Each restaurant will have a separately metered electrical feeder to suit individual restaurant requirements and decor.

Existing reconstructed and new museum facilities will have a mixture of fixed incandescent downlights and plug-in trolley track for adjustable lighting as required by the changing exhibits. In the reconstructed museum facilities surface metal wireway will be provided for flexible power requirements.

The electrical and telephone distribution will be directed to central electrical closets on each floor via a common centrally located utility trench necessitated because of headroom limitations.

Details of the new work necessary for each part of the building appear in the chapter containing the Outline Specifications.

C. FUEL ANALYSIS

1. Introduction

Annual energy costs for heating, air conditioning, and domestic hot water generation throughout, including museum and common areas, retail commercial stores, commercial office space, and restaurant facilities, are based upon the following rental parameters:

Heating	Central heating system for entire complex
Air Conditioning	Central chilled water system for entire complex
Domestic Hot Water	Central system for entire complex except for special restaurant requirements
Electricity	Complete for the following: 1. Museum and Common Areas 2. Commercial Office Space 3. Central Chilling Plant 4. Central Heating Plant Excluding 1. Commercial Stores, Light and Power 2. Restaurants, Light and Power
Gas	Excluding restaurant cooking (Separate gas metering)

The following systems are analyzed:

1. Steam space heating, steam domestic hot water generation, steam absorption air conditioning.
2. Electric space heating, gas domestic hot water generation and electrically driven refrigeration equipment.

Only one type of building construction is considered since most of the project is existing structure and the landmark characteristics of construction are to be maintained.

2. Annual Operating Cost—Summary

	Steam Heating, Steam Refrigeration & Steam Hot Water Generation	Electric Heating & Refrigeration Gas Water Generation
Steam	$ 41,032	--------
Electric	53,924	$152,326
Gas	------	2,088
Total	$94,956	$154,414

3. Recommendations

Based upon our analysis, we recommend the following system:

a. Steam heating
b. Steam heat exchangers for the generation of domestic hot water.
c. Steam absorption units for chillers.

Design Criteria

Design Heating Conditions	Inside Air Temperature—70° F. Outside Air Temperature—15° F.	
Design Air Conditioning Conditions:	Inside Air—78° F.D.B. 50% Relative Humidity Outside Air—95° F.D.B. 75° F.W.B.	
Electric Energy Costs	See Con Edison Schedule	
Steam Energy Costs	See Con Edison Schedule	
Gas Energy Costs	See Con Edison Schedule	
Steam Heating Value	1100 BTU/hr	
Operating Schedule:		
*Museum	Monday-Saturday	7 hrs.
	Sunday	4 hrs.
Retail Commercial Space	Monday-Saturday	10 hrs.
	Sunday	8 hrs.
Commercial Office Space	Monday-Saturday	10 hrs.
Restaurants	Monday-Saturday	10 hrs.
	Sunday	8 hrs.

*Hours based on Museum of Natural History, N.Y.C.

Installation Costs: The Installed Costs of an "All Electric" or a Steam System would be approximately the same.

Building Steam Requirements

Heat losses including piping factor (BTU/hr)*

	Transmission	Infiltration (Unoccupied)	Outside Air Intake (Occupied)
Museum & Common Areas	1,100,000	600,000	1,900,000
Stores	900,000	500,000	900,000
Offices	700,000	500,000	750,000
Restaurants	200,000	100,000	700,000
Total	2,900,000	1,700,000	4,250,000

* Based upon the following transmission coefficients:

Walls: U = 0.35
Glass: U = 1.13
Roof: U = 0.17

Total Heating Requirements Occupied	7,150,000 BTU/hr
Total Heating Requirements Unoccupied	4,600,000 BTU/hr
Domestic Hot Water	4,000 Gal/day
Instantaneous Demand	700,000 BTU/hr
Air Conditioning	9,150,000 BTU/hr

Air Conditioning Breakdown (Tons of Refrigeration)

Museum & Common Areas	250
Stores	120
Offices	100
Restaurants	60
Total	530 Tons

Note: Special construction insulation and double glazing have not been considered for this project as it is intended to preserve many existing architectural features including the windows and exposed brick walls.

Steam Costs

19,366,800 lbs. of steam will be used annually for heating and cooling at a cost of $41,032. Costs are based upon Con Edison Steam Service Classification No. 2.

Electric Costs—Steam Heating, Steam Hot Water Generation and Steam Refrigeration

Based upon Con Edison Service Classification No. 9 annual cost will be $53,924.

Electric Costs—Electric Heating, Gas Hot Water Generation and Electric Refrigeration

Based upon Con Edison Service Classification No. 9 with electricity for heating averaged throughout the heating season the annual cost will be $152,326.

Gas Costs—Domestic Hot Water Generation

Based upon Con Edison Service Classification No. 2 annual consumption will be 1,195,200 cubic feet at a cost of $2,088.

CHAPTER III

LEGAL REQUIREMENTS

A. BUILDING CODE ANALYSIS

1. New York State Building Code

Under the terms of the New York State Building Construction Code the following major considerations are apparent:

a. The occupancy classification of the Maritime Museum building is one or more of the following:
1. Group C1—Business
2. Group C2—Mercantile
3. Group C5—Assembly

b. Under Table C203-1a of the Code for Type 4a (Ordinary) Construction, the maximum permitted number of stories height and fire areas for the above-mentioned occupancies are as follows:
1. C1—4 stories, 70 feet, 9,000 sq. ft.
2. C2—3 stories, 55 feet, 9,000 sq. ft.
3. C5—2 stories, 40 feet, 6,000 sq. ft.

c. By providing sprinklers throughout under Section C203-1.2 (812.1c) of the Code, one additional story can be added to the maximum permitted number of stories as listed above, for Groups C1 and C2 only.

d. As the primary occupancy of the building will be Group C5 the 2-story limitation is crucial.

e. It is conceivable to consider the project as two separate buildings with a 2 story museum on top of a 4-story Business and Mercantile structure. The two horizontal buildings could be isolated from one another with fire rated walls and floors and separate means of egress.

f. The State Code provides no specific detailed method to achieve the above-mentioned possibility and would, in fact, under a literal interpretation, reduce the existing 5, 6 and 7 story buildings to 2 floors with all the other existing levels converted to mezzanines which under Code Section C108-3 (803.3) can only be 1/3 their present floor areas. This would make the project completely unrealistic by reducing the total usable area of the entire block approximately to the area desired by the Museum for its own purpose, without any possibility of rental commercial space.

2. New York City Building Code

The following is a list itemizing the various sections of the Building Code of the City of New York as they apply to the New York State Maritime Museum project.

Many items are included as points of information and compliance with same is a simple matter and noted as such. Other items are more complex and their application to the project is described in more detail. When the project, as it is presently envisioned, does not comply with a specific section, such non-compliance is specifically noted.

Incorporated at the conclusion of this analysis are our general comments and considerations.

Code Page	Code Section	Content of Section	Remarks
		Article 2—Definitions	
		The following definitions are included in this analysis as they are germane to the interpretation of later sections.	
85	C26-201.0	**Accessory Use**	
		A use or occupancy incidental to the principal use or occupancy of the building.	
		Access Stair	
		A stair between 2 floors which does not serve as a req. means.	
88		**Cellar**	
		A story partly underground but have ½ or more of its clear height below curb.	
89		**Corridor**	
		An enclosed public passage providing a means of access from rooms or spaces to an exit.	

Code Page	Code Section	Content of Section	Remarks
91	C26-201.0	**Exit**	
		A means of egress from the interior of a bldg. to an open exterior space.	
		Fire Canopy	
		A solid horizontal projection extending beyond the face of a building.	
92		**Fire Area**	
		A floor area enclosed by fire division.	
		Fire Division	
		Any const. vert., horiz., or otherwise having reg. fire-resistance rating providing a fire barrier between adjoining bldgs., fire areas or bldg. sections within the same bldg.	
		Fire Separation	
		As above.	
93		**Floor Area Net**	
		When determining occupancy load of space excluding thickness of walls and partitions, columns, furred-in spaces, closets, toilets, stairs, halls, corridors, elevators and other unoccupied spaces.	
94		**Height (Bldgs.)**	
		The vert. dist. from curb to highest point of roof bms. in case of flat roof or the average h't. of a gable having more than 1 ft. in 4½ ft. pitch.	
96		**Mezzanine**	
		An intermediate floor between the fl. and clg. of any space. When gross fl. area exceeds 33% of the story below the mezz. shall be counted as a story.	
98	C26-201.0	**Place of Assembly**	
		An enclosed room in which 75 or more persons gather.	
102		**Street Floor**	
		A floor usually the principal entrance floor that is not more than ½ story above or below grade.	
		Article 3—Occupancy and Construction Classification	
106	Tables 3-1 & 3-2	**Occupancy Classification**	

Occupancy Group	Desig-nation	Representative Occupancies	Fire Index
Mercantile	C	Retail Stores	2
Industrial	D-2	Kitchen, Mech. Rm.	2
Business	E	Offices	2
Assembly	F-1b	Lecture Hall	1
Assembly	F-3	Museums	1
Assembly	F-4	Restaurants	1
Educational	G	Libraries	1

Code Page	Code Section	Content of Section	Remarks
	C26-301.2	**Classification of Spaces**	
		Every rm. or space must be classified according to its use.	The above-listed Table 3-1 Occupancies are included in this project.
	C26-301.3	**Classification of Bldg.**	
		Every bldg. must be classified according to its main use or dominant occupancy.	The project will be considered as one bldg. Occupancy Group F-3 Museum.
108	C26-301.4	**Separation of Occupancies**	
	(a)	Spaces classified in Occupancy Groups having a higher Fire Index than the bldg. shall be separated from adjoining spaces w/Fire Divisions as per Table 5-2 (see page 140).	Occupancy will be separated accordingly.

Code Page	Code Section	Content of Section	Remarks
108	(b)	Spaces classified in Occupancy Groups having the same or lower Fire Index than the bldg. shall be separated from adjoining spaces w/Fire Separations as per Table 5-1 (see page 140).	Occupancies will be separated accordingly.
	C26-301.6	**Multiple Occupancy** When a bldg. or space is used for multiple purposes involving different activities at different times the bldg. shall be given a separate occupancy group classification, for ea. of the activities involved. The design and const. of the bldg. shall be in accordance w/ the most restrictive provisions that apply to any of the occupancy group classifications utilized.	The most restrictive occupancy group classification is the Assembly F-1b, F-3 and F-4 Groups. The design will be in accordance with these Groups.
112	C26-313.2	**Classification of Bldg.** Every bldg. shall be classified in one const. class listed in Table 3-3.	The Construction Classification will be Class IIB which includes buildings with exterior walls, fire walls, exitways and shaft enclosures having the required fire-resistance ratings and which floors, roofs and interior framing are wholly or partly of wood.
114	Table 3-4	Construction Classification	

Const. Element	Class IIB Rating in Hrs.
Exterior Walls	
Bearing	1½
Non-Bearing	0
Interior Bearing Walls	1
Vert. exits, etc.	2
Cols., Girders	1
Fl. const. inc. bms.	1
Roof const.	¾

Article 4—Building Limitations

Code Page	Code Section	Content of Section	Remarks
118	C26-402.1	All of the borough of Manhattan is inside the fire district.	
120	Table 4-1 & 4-2	Area and H't. Limitations	For Class II B Construction, as indicated in Table 4-1 and 4-2 at left, all the existing floor levels can be utilized. The only differentiation between sprinklered and unsprinklered buildings, in regard to this project, which does not exceed 6 stories, is the max. permitted fire area. A completely sprinklered bldg. permits unlimited fire areas allowing greater flexibility in tenant rental possibilities.

for Unsprinklered Bldgs.

Occupancy Group	Class II B Area	Class II B H't.
Retail C	7,500	75 ft. (6)
Kit. & Mech. D-2	14,700	75 ft. (6)
Offices E	14,700	75 ft. (6)
Lecture Hall F-1b	14,700	75 ft. (6)
Museum F-3	14,700	75 ft. (6)
Restaurant F-4	14,700	75 ft. (6)
Library G	14,700	75 ft. (6)

for Sprinklered Bldgs.

Occupancy Group	Class II B Area	Class II B H't.
Retail C	N.L.	85 ft. (7)
Kit. & Mech. D-2	N.L.	85 ft. (7)
Offices E	N.L.	85 ft. (7)
Lecture Hall F-1b	N.L.	85 ft. (7)
Museum F-3	N.L.	85 ft. (7)
Restaurant F-4	N.L	85 ft. (7)
Library G	N.L.	85 ft. (7)

N L.: No Limit.
(7): Indicates number of permitted stories.
Area: Indicates max. gross area within any one fire area.

Code Page	Code Section	Content of Section	Remarks
124	C26-406.1	H't. Limitations	
		In applying h't. limitations cellars shall not be considered stories nor shall roof tanks, HVAC equip., bulkheads, penthouses and parapet walls be included in h't. calculations	The new elevator and cooling tower consequently would not interfere with the height limitations of Tables 4-1 and 4-2.
125	C26-408.1	Permissible Projections	
	(a)	All fixed projections shall not exceed 10 sq. ft. within any 100 sq. ft. of wall area.	
	(1)	Entry det's. including steps and drs. when fully opened not to project more than 18 in.	Projection of steps at John Street Museum entrance are permissible.
	(2)	Arch. det's. (cornices, eaves, sills, etc., not to project more than 4 in. less than 10 ft. above sidewalk and 10 in. 10 ft. above sidewalk.	Existing cornices on 159 John Street and 193 Front Street project further than 10 in.
	(4)	Marquees not nearer than 2 ft. off curb. Fascia not to exceed 3 ft.	Canopies and/or marquees at main entries are feasible.
	(5)	L't. fixtures not to project more than 2 ft. and must be 8 ft. above sidewalk.	
		Article 5–Fire Protection Construction Requirements	
132	C26-503.1	Where provisions of code require a facility to be enclosed, the const. req. shall not apply to an exterior wall.	
133	C26-503.1 (f)	In bldgs. classified in occupancy groups A, B, C, D or E exceeding 3 stories or 40 ft. in h't., opgs. located vertically above one another shall be separated by a spandrel wall 3 ft. h.	The Fifth and Sixth levels of 159 and 165 John Street and 189 and 191 Front Street have less than 3 ft. spandrels.
133	C26-503.3	Parapets	
		Parapets to be provided on all exterior walls of bldgs. of const. Class II B except: Roofs w/ pitch more than 20° to the horiz. or provided with a fire canopy around the portion of the wall that is without a parapet.	Flat roofs at 159, 165, 167 and 171 John Street, 189, 191 and 196 Front Street, 91, 92 and 93 South Street have flat roofs and no parapets. A fire canopy is for historical reasons unfeasible.
134	(b)	Reg. parapets to be 2 ft. h. of fire resist. rating of wall below.	
	C26-503 4	Protective Guards	
		Bldgs. more than 22 ft. h. w/roof flatter than 20° to horiz. to have parapets or rails or combs. of both w/min. h't. of 3 ft. 6 in. Railing may be located inward from exterior wall a max. of 6 ft. and of type to prevent children from crawling under.	Railings will be provided and set back from face of exterior walls.
	C26-503.5	Exterior Trim	
		Exterior trim is material other than dr. and window frames and sash that is applied to exterior walls such as cornices, fascias, etc. Combustible exterior trim may be used up to a h't. of 40 ft. in Class IIB const. if not more than 10% of bldg. surface area.	Existing combustible trim exists higher than 40 ft. on 92 and 93 South Street and 193 Front Street. The work of the project will entail the repair of the existing trim and not its complete replacement (see minutes of 1/16/73 meeting).
138	(f)	Const. of Sloping Roofs	
		When slope of roof is less than 60° from horiz. roof shall be const. as req. for flat roofs. Where back of mansard is exposed to outdoors it shall be const. as req. for roof of bldg. When slope of roof is more than 60° from horiz. roof shall be const. as req. for exterior non-bearing walls.	Table 3-4 for Class IIB const does not require any fire-resistance rating for non-bearing exterior walls w/a 30 ft. exterior separation, hence the mansard roof on 92 and 93 South Street may be combustible.

Code Page	Code Section	Content of Section	Remarks
138	(g)	**Dormers**	
		The roofs of dormers shall be of the same type of construction and of the same class of roof covering as required for the roof. The walls of dormers shall have the same fire rating as req. for exterior non-bearing walls.	As indicated above, Table 3-4 does not req. any fire resistance rating, hence the dormers of 92 and 93 Front Street may be const. of combustible material.
139	C26-504.1	**Fire Segregations of Occupancies**	
	(a)	**Fire Divisions**	
		When different occupancies are to be segregated by fire divisions as indicated in Sect. C26-301.4a the occupancies shall be separated horiz. and vert. as indicated in Table 5-2.	The bldg. is Occupancy Group F whose Fire Index is 1. Stores, Kitchens, Mech. Rms. and Offices have an Index of 2 and must be separated by Fire Divisions as per Table 5-2.
	(b)	**Fire Separations**	
		When different occupancies are to be segregated by fire separations as indicated in Section C26-301.4b the spaces shall be separated horiz. and vert. as indicated in Table 5-1.	As indicated above, the Fire Index of the bldg. is 1. Lecture Hall, Restaurants and Libraries also have index of 1. However, Table 5-1 does not require Fire Separations for these occupancies.
	C26-504.2	**Fire Divisions**	
	(a)	When roof const. is combustible on both sides of vert. fire div. the vert. fire div. shall extend through roof const. to h't. at least 4 in. above the high point of roof framing.	Existing party walls of 4 through 18 Fulton Street extend more than 4 in. above the roof.
		Above decking of roofs flatter than 20° to horiz. blocking shall be const. to form cants on both sides of fire div. w/slopes not steeper than 1:4.	Cants will be provided.
	(c)	When a vert. fire div. is req. to have a rating of 3 or 4 hr. and roof const. is less than 2 hr. the div. shall extend above roof to form a 3 ft. h. parapet.	Fire divisions required for this project do not exceed 2 hrs.
139	(g)	Where combust. members such as joists are supported by vert. fire div. joists shall not pass through wall and shall have at least 4 in. of solid noncombustible material separating ends.	The construction of existing joists as they relate to this Section are not known at this time.
141	C26-504.3	**Fire Separations**	
	(a)	Different tenant stores and offices to be separated from each other by fire separations as per Table 5-1 except when separated by fire div. In no case shall they be separated by less than 1 hr.	Fire separations are not required in this project. However, different tenant spaces will be separated by 1 hr.

Table 5-1 Fire Separation

	C	D-2	E	F-1b	F-3	F-4	G
C	2	NR	NR	NR	NR	NR	NR
D-2	2	2	NR	NR	NR	NR	NR
E	2	2	2	NR	NR	NR	NR
F-1b	2	2	2	2	NR	NR	NR
F-3	2	2	2	2	2	NR	NR
F-4	2	2	2	2	2	2	NR
G	2	2	2	2	2	2	2

Fire separations are not required. Fire Divisions of 2 hrs. are required between all Stores, Kitchens and Mech. Rms., Offices and adjoining Museum, Restaurant, Lecture Hall and Library Spaces.

Table 5-2 Fire Divisions

The provisions of Table 5-1 not required for 75 sq. ft. closets.

Non-residential kitchens need not be separated by fire sep. provided:

- Cooking equip. is vented directly outdoors;
- A draft curtain 24 in. dn. from clg. is provided between kit. & dining;
- Opgs. to kit. are as indicated.

Code Page	Code Section	Content of Section	Remarks
	C26-504.4	**Opgs. in Fire Div. and Separations**	
		Opgs. in Fire Div. to have opg. protectives as indicated in Table 5-3.	

Code Page	Code Section	Content of Section	Remarks
141	Table 5-3	Opg. Protectives	Opg. protectives of required rating will be provided.

Fire-Resist. Rating of Fire Div. & Separation	Fire Protection Rating of Opg. Protective
3 or 4 hr.	3 hr. (Class A)*
2 or 1½ hr.	1½ hr. (Class B)
1 hr.	¾ hr. (Class C)

Code Page	Code Section	Content of Section	Remarks
		*Shall consist of 2 1½-hr. Class B opg. protectives on each side of fire div. or sep.	3 and 4 hr. Fire Divisions are not at this time part of the project.
	C26-504.4 (a)	In unsprinklered bldgs. no opg. through fire div. or sep. shall exceed 120 sq. ft. w/no dimension greater than 12 ft. and aggregate width of any level shall not exceed 25% of length of wall.	The building will be sprinklered throughout gaining the advantage of unlimited aggregate width of opgs., particularly for museum and store spaces.
		In sprinklered bldgs. no opg. through fire div. or sep. shall exceed 150 sq. ft. w/no dimension greater than 15 ft. and aggregate width is unlimited.	
143	C26-504.6 (a)	Shafts which serve the top most story of a bldg. shall extend through the roof 36 in.	Shafts will extend through the roof accordingly.
	(d)	All closed shafts w/area exceeding 4 sq. ft. other than elev. or dumbwaiter shall be provided w/smoke vent of at least 3½% max. area of shaft at any fl., but not less than ½ sq. ft. Smoke vents may be windows, louvers, skylights, or vent ducts.	Smoke vents will be provided accordingly.
149	C26-504.13	Flooring in Const. Group II may be of combustible material.	Existing and new wood finished flooring may be utilized.
		Article 6—Means of Egress	
152	C26-601.1	The occupant loads of floors shall not be cumulative for the purpose of designing vert. exits except where one floor is used by another as a means of egress.	The maximum occupancy is located on the Fifth Level and vertical exits are calculated accordingly.

Code Page	Code Section	Content of Section	Remarks
152	(a)	All bldgs. shall have at least one primary entrance accessible to and usable by individuals in wheelchairs. Such entrance shall provide access to elevators.	The entrances on Fulton and Front Streets are level with the sidewalks and reach all elevators.
153	Table 6-1	Determination of Exit Req.	The buildings will be sprinklered throughout gaining the advantage of a greater permitted travel distance. Doors, stairs and passages have been studied accordingly.

Occ. Group	Max. Dist. Travel (ft.)		Number persons per unit width			
			Dr. Opgs.			
	Unsp.	Sp.	Gr.	Other	St.	Pass.
C	150	200	100	80	60	100
0-2	"	"	"	"	"	"
E	200	300	"	"	"	"
F	150	200	"	"	"	"
G	"	"	"	"	"	"

Occ. Group	Min. Corr. Width (in.)	Max. Corr. Dead End (ft.)
C	36	50
0-2	44	50
E	44	50
F	44	30
G	66	30

Corridors exceed the required min. width and dead end corridors are within the 30 ft. min.

Code Page	Code Section	Content of Section	Remarks
154	Table 6-2	Occupant Load Req.	The occupancy of each of the floors has been determined in accordance with Table 6-2.

Occupancy	Net Fl. Area per Occupant
Sales ground fl.	25
Sales all other fl's.	50
Offices	100
Seating (Movable)	10
Exhibition	10
Library	25
Dining	12

Code Page	Code Section	Content of Section	Remarks
155	C26-601.2 (c)	The occupant load of toilets storage rms. may be omitted from the occupant load calculations of the floor.	

Code Page	Code Section	Content of Section	Remarks
155	C26-601.3	**Capacity of Exits** The capacity of exits shall be measured in unit widths of 22 in. Where 12 in. or more is added ½ unit of width may be credited.	
	C26-601.4	**Travel Distance** Max. travel dist. taken from most remote point in room to center of dr. opg. on vert. exit, passageway, etc.	
156	C26-602.2	**Tenant Spaces** When more than one tenant occupies a fl. ea. tenant shall have direct access to req. exits.	The corridor serving all tenants permit direct access to req. exits.
	C26-602.4	**Exit Discharge** All vert. exits to extend in a cont. enclosure to open exterior space through exit passageway . . .	The concept of a Street Floor Lobby will be utilized on this project. Exit passageways will not be required.
	C26-603.1	There shall be at least 2 dr. opgs. leading to exits when occupant load exceeds:	The Lecture Hall exceeds 75 persons as well as all other Occupancy Group F and G spaces, consequently, a minimum of two doors will be provided for those spaces.

Table 6-3

Occ. Group	Max. Occ. Load w/one dr.
C	75
D-2	50
E	75
F	75
G	75

Code Page	Code Section	Content of Section	Remarks
157	C26-603.2	**Exits from Floors** There shall be at least 2 independent exits from ea. fl.	Floors will be served by three exits.
157	C26-603.3	**Exit Reduction** When fl. area has access to areas of refuge as indicated in Section C26-604.5 the no. persons exits are to be provided for may be reduced to 50% when one area of refuge is provided and to 33% when two areas are provided.	Two areas of refuge will be provided on the Fourth and Fifth Levels thereby permitting a reduction of the required number of vertical exits to 33%. Areas of refuge will not be required on other floors.
158	C26-604.1	Fire escapes not permitted. Elevators or escalators req. in bldgs. 4 stories or more.	All existing fire escapes will be removed.
158	C26-604.2	**Corridors** Corridors to be free of combustible contents.	
	(b)	Corridor to be min. 7 ft. 6 in. high for 75% of fl. area at no point less than 7 ft.	Clear ceiling heights will be obtained by raising the elevation of the Fourth and Fifth levels.
	(c)	Changes of level in corridors requiring less than 2 risers to be ramped.	
159	(h)	Interior corridors to have min. fire resist. rating of 1 hr.	
	(i)	In corridors req. to have 1 hr rating ¼ in. wire gl. permitted in 20% of corridor wall. No panel to exceed 720 sq. in.	With the introduction of sprinklers throughout the building this limitation may, in our opinion, be exceeded.
160	C26-604.3	**Exit Passageways**	
	(a)	The width of exit passageway serving more than one vert. exit shall be 75% of req. width.	Exit passageways may not be required in this project in lieu of the use of a street floor lobby. The single stair on South Street reaches the street directly.
	(c)	The h't. same as req. for corridors.	
	(f)	No opgs. other than exit drs. permitted in exit passageway except as indicated in (h) below.	

Code Page	Code Section	Content of Section	Remarks
160	(h)	**Street Floor Lobbies**	
		Street fl. lobbies may be used as exit passageways providing:	
	(1)	100% of vert. exits may be served by one street fl. lobby provided exit is in two different directions from discharge of all vert. exits.	The two vertical exits terminating in the street floor lobby are provided with exits in both directions through the Lobby to the Fulton and Front Street entrances.
	(2)	Street fl. lobbies to be increased in width to accommodate occupant load of communicating spaces on fl. and vert. exits.	Street floor lobby width has been studied accordingly.
	(3)	Opgs. between street fl. lobbies and elevators and/or communicating spaces shall comply as follows:	
	(a)	All drs. to be 1½ hr. except when communicating space is unsprinklered and Group F or sprinklered and Group D-2 or E, then ¾ hr. drs. may be provided.	Doors to be rated accordingly.
	(b)	Show Windows may be provided on street fl. lobbies if less than 24 sq. ft. in fl. area and protected by sp.	Sprinklers will be provided.
161	C26-604.4	Doors	
162	(e)	Max. width of exit dr. 48 in. Min. width 36 in. Drs. divided by mullions ea. opg. min. width 32 in.	
	(g)	Corridor drs. in rms. req. to have more than one dr. to swing in direction of exit.	Doors to Office and Store spaces may swing in.
164	(m)	Revolving drs. may be used as exits provided:	Revolving drs. will not be used as required exits.
	(1)	One unit width for ea. revolving dr. and do not comprise more than 50% of req. exit, and are within 20 ft. of swinging drs.	

Code Page	Code Section	Content of Section	Remarks
165	C26-604.5	Areas of Refuge	
	(a)	Areas of refuge shall be separated by 2 hr. const.	
	(b)	Areas of refuge must be occupied by same tenant adequate to hold occupant load it receives from floor area it serves as computed by Section C26-603.3 in addition to its own occupant load allowing 3 sq. ft. per person.	The Fourth and Fifth Levels will be divided into three areas of refuge. The 2 hr. const. will be continued through the Third and Sixth Levels also.
	(c)	Areas of refuge to be provided with at least one vert. exit.	Each area of refuge will have its own stair serving as vertical exit.
166	C26-604.6	**Horizontal Exits** may consist of drs. through walls w/2hr. rating.	Doors will provide horizontal exits to each area of refuge.
	(a)	Capacity of drs. shall be as listed in Table 6-1. Only widths of drs. swing in direction of exit to be counted.	As areas of refuge serve as mutual horizontal exits, doors must swing in both directions.
	C26-604.7	**Supplemental Vertical Exits**	
		Enclosed interior stairs may provide access to areas of refuge located on a fl. nearer to the street floor providing:	A supplemental vertical exit will be provided to serve the Seventh Level Offices.
	(a)	Supplemental vert. exits serve no other purpose.	
167	C26-604.8	**Interior Stairs**	
	(b)	Min. Stair 44 in. wide	
	(d)	Max. run 12 ft. high.	
	(e)	Winders or curving or skewed stairs not permitted as exits.	
168	Table 6-4		

Occupancy	Max. Riser	Min. Tread
Assembly	7½ in.	9½ in.

Code Page	Code Section	Content of Section	Remarks
	(f)	Stairs more than 88 in. wide to have intermediate handrail.	

Code Page	Code Section	Content of Section	Remarks
168	(i)	**Stair Enclosures**	
		Unenclosed stairs permitted in Occ. Group F as provided in Article 8.	
		Stairs from mezzanines may be unenclosed w/open or closed risers.	
	(j)	**Roof Access**	
		Roofs with slope less than 20° shall be reached by interior stair.	All flat roofs may be reached by new stairs.
	(l)	**Spiral stairs** may serve as access stairs between 2 fl's. but may not serve as req. exits except from mezzanines w/not more than 25 persons.	
172	C26-604.11	**Escalators** may be used as exits in lieu of interior stairs w/40 in. step equal to 2 exit width.	The single escalator in the project will not serve as an exit.
		Article 8—Places of Assembly	
210	C26-801.9	**Travel Distance**	
		At least one exit shall be available from the most remote point within the primary distance and another within the secondary distence.	Travel distance and location of new stairs have been studied accordingly.
	Table 8-1	Determination of Exit	Primary and Secondary distances are not exceeded particularly due to the increases permitted when sprinklers are provided.

Occupancy Group	Max. Travel Dist. (ft.)	
	Primary	Secondary
F-1b	100	125
F-3	100*	125*
F-4	85*	125*

*If Place of Assembly is provided w/sprinklers then increase dist. by 50%.

Code Page	Code Section	Content of Section	Remarks
210		Capacity (number of persons per unit width)	

Occ. Group	Door Openings			
	From Asmbly. Space	From Safe Area	Stairs Escal.	Corr. & Exit Psgwys.
F-1b	80	125	80	100
F-3	80	125	80	100
F-4	50	100	60	80

Code Page	Code Section	Content of Section	Remarks
		See pages 210 and 211 for measurement of dist. of travel.	
211	C26-801.10	**Exit Opgs.**	
	(b)	Min. width 36 in.; 66 in. for pairs. Max. 88 in. for pairs.	
	(c)	**Classification**	
		Class 1 — Exit opg. used for normal entry and open to safe area.	Areas of refuge will serve as safe areas.
		Class 2 — Exit opg. not used for normal entry and open to safe area.	
		Class 3 — Exit opg. that opens into corridors, exit passageways, or vert. exits.	
	(d)	Distribution of Classes The req. exit capacity from assembly spaces w/net fl. area less than 12 sq. ft. per person shall be distributed so that exit opgs. of ea. class are as follows:	
	(1)	Assembly spaces not more than 15 ft. above grade: Class 1 — not less than 40%. Class 2 — not more than 60%. Class 3 — not more than 40%.	

Code Page	Code Section	Content of Section	Remarks
211	(2)	Assembly spaces more than 15 ft. above grade but not more than 30 ft. above grade: Class 1 — not less than 60%. Class 2 — not more than 40%.	
	(3)	Assembly spaces more than 30 ft. above grade: Class 1 — not less than 100%.	Most assembly spaces of the project are 30 ft. above grade.
212	C26-801.11	Safe Areas	
	(a)	Safe areas when serving Class 1 or 2 opgs. to be separated from assembly spaces by 2 hr. fire resistance rating. They shall serve as normal entry to assembly area and may be corridors, lobbies or lounges. No rm. classified as D-2 may open upon safe area.	Safe areas will be adjoining museum spaces which serve as areas of refuge and corridors.
	(1)	Collecting Safe Areas. Bldgs. w/more than one place of assembly may have a collecting safe area that receives the occupant load discharged into it by other safe areas.	
	(2)	The occupant load of a safe area shall be the aggregate occupant load of all exit opgs. discharging onto it. The occupant load of collecting safe area shall be as above plus 50% of the occupant load discharging onto it.	
	(3)	Safe areas must accommodate total occupant load on the basis of 2 sq. ft. per person. Min. dimension shall be 8 ft. The h't. of safe area shall be 8 ft.	Safe areas located on the Fifth Level serving the museum will have 6 ft. 10 in. clear head room if the existing floor is retained. Existing floors elevation will be adjusted to adhere to this section.
213	(4)	When safe area is at grade leading to street need not comply w/(3) above.	
213	(5)	**Ramps and Steps in Safe Areas** Ramps not more than 1:12. Risers 6 in. min.; 7 in. max. No change in level less than 3 risers.	
	C26-801.12	**Corridors**	
	(a)	Capacity as listed in Table 8-1 otherwise as indicated in Art. 6.	
	(b)	Any change of level req. less than 3 risers to be ramped.	
	C26-801.13	**Exit Passageways** Same as indicated above for Corridors.	
214	C26-801.14	**Vertical Exits** Same as indicated above for Corridors. Vertical exits leading from one safe area to another need not be enclosed.	
215	C26-801.18	**Emergency Lighting** All assembly spaces must be provided w/emergency l'tg.	Emergency lighting will be provided.
		Article 10—Structural Work	
243	C26-1003.1 (b)	Unreinforced Masonry to be in accordance w/reference std. RS10-1.	
251	C26-1006.5 (a)	The ends of wd. bms. to be firecut to a bevel of 3 in.	Existing beams may not be so cut.
254	C26-1006.6 (c) (2)	Bridging req. for ea. 8 ft. of span.	Bridging will be installed in existing structural members as required.

Code Page	Code Section	Content of Section	Remarks
394	C26-1702.1	**Required Standpipe**	
	(a) (2)	All bldgs. 2 or more stories in h't. w/net fl. area 10,000 sq. ft. in area shall have wet standpipe system throughout the bldg.	A standpipe system is required. However, if sprinklers are provided throughout the building, then standpipes may be omitted.
	(d) (2)	Bldgs. in Occupancy Group F not exceeding 6 stories or 75 ft. in h't. and that are equipped w/sprinkler system throughout do not require standpipe indicated above.	
406	C26-1703.1	**Required Sprinklers**	
		Automatic sprinklers required in the following:	Sprinklers will be provided throughout.
	(f)	Spaces in Group C larger than 7,500 sq. ft.	
	(k)	Any story above grade which can not be ventilated by 20 sq. ft. of free openable area.	
	(l)	Provision of (k) above not required in type E occupancy provided B-2 type spaces are sprinklered	
A40	RS10-1	Masonry	This reference standard will be examined in detail at a later stage of the development of the project and the strength of existing and new masonry walls analyzed accordingly.
A138	RS16-5	Min. Number of Plumbing Fixtures Required.	Provided plumbing fixtures exceed the minimum.
	P104.1(d)	Toilets for ea. sex to be located one fl. above or one fl. below intended occupant served.	

Occupancy	Water Closets	Urinals	Lavs.
Assembly			
1 to 400	3+		
1 to 600		3+	
1 to 750			3+
	1 for ea. 500 m.	1 for ea. 300 m.	1 for ea. 500
	1 for ea. 300 w.		
Offices Retail			
1 to 150	6+	Urinals in lieu of w.c. up to ½	
1 to 125			5+
	1 for ea. 40		1 for ea. 45

One drinking fountain must be provided for each 1000 persons (1 must be provided on every level)

Code Page	Code Section	Content of Section	Remarks
415	C26-1704.1 (a) (5)	Required closed circuit electrically supervised fire alarm system shall be installed in retail sales establishments one or more fl's. above the street.	Electrically supervised fire alarm system will be provided.
		Article 18—Elevators and Conveyors	
421	C26-1800.6 (c)	Fire resistance rating of hoistway enclosures shall be 2 hr. Hoistway drs. 1½ hr.	
	(g)	Escalators shall be equivalent to stairs when they comply w/Section C26-604.11.	Escalators will not serve as req. exits.
	RS9-2	Min. Req. Live Loads, lbs./sq. ft.	
A36		Retail Stores First Fl. 100 Retail Stores Upper Fl. 75	New and existing structural elements have been analyzed accordingly.
A35		Equip. Rms. (Mech. Elec.) 75 Office 50	

Code Page	Code Section	Content of Section		Remarks
A35		Lecture Hall	60	
		Museum	100	
		Restaurant	100	
		Library Reading Area	60	
		Library Stacks	100	
		Corridors	100	

3. New York City Building Code Summary

a. Building Limitations

Under the provisions of the Building Code of the City of New York the project seems generally feasible as originally conceived.

1. The dominant occupancy of the building is Assembly, Occupancy Group F-3 for Museum spaces.

2. As per Table 4-1 for unsprinklered buildings under Class IIB Construction the maximum permitted number of stories is 6 with a building height of 75 ft. and a fire area of 14,700.

3. With the addition of sprinklers throughout the building, as indicated in Table 4-2, the maximum permitted number of stories is increased to 7 with a building height of 85 feet and no limit to the fire areas.

b. Vertical Exits

The required number of vertical exits advises to take advantage of the provisions of the City Code concerning "areas of refuge".

1. As per Section C26-603.3 the number of vertical exits may be reduced to 33% if two areas of refuge are provided.

2. The Fourth and Fifth Levels which have the maximum number of occupants will be provided with three areas of refuge permitting the reduction from the number required without any areas of refuge 30 unit width of vertical exits, to 10 as presently shown, 2 double stairs and 1 single stair.

3. This reduction generates more rental space particularly at the lower floors.

c. Areas of Refuge

The layout of the existing walls naturally divides the building into 3 approximately equal parts or areas of refuge.

1. As per Section C26-604.5(a) areas of refuge must be separated one from the other by 2-hr. fire rated construction. The existing 12-in. thick brick walls lend themselves extremely well to this purpose.

2. In accordance with Section C26-604.5(c) each area of refuge must have at least one vertical exit; hence the distribution and location of one of each of the required stairs in an area of refuge.

d. Street Floor Lobby

The Ground Floor serves as a street floor lobby for the two double stairs. The single stair exits directly to the street.

1. As per Section C26-604.3(h)(1) 100% of the vertical exits may be served by a common street floor lobby and the lobby must have exits in two different directions. The two separate entrances on Fulton and Front Streets serve this purpose.

2. As per Section C26-604.3(h)(3)(b) show windows may be provided within certain limitations in street floor lobbies.

e. Safe Areas

Areas of refuge and corridors located on the Fourth and Fifth Levels are safe areas.

1. Safe areas are those areas into which public assembly spaces such as museum areas exit into.

2. As per Section C26-801.11(a)(3) all safe areas must have a clear ceiling height of 8 ft. The existing Fourth to Fifth Level floor to floor height is only 8 ft. 2 in. Consequently, the existing Fifth Level floor will be removed and a new floor constructed at a higher elevation.

f. Sprinklers

As per Section C26-1703.1 sprinklers are only required in this project in stores larger than 7,500 sq. ft. It is recommended that sprinklers be provided throughout the project for the following reasons:

1. As indicated above in preceding item a. (Building Limitations) the areas and heights of the existing building may be fully utilized without the addition of sprinklers throughout the building. However, from a building limitation standpoint, sprinklers are desirable in that the fire area on any given floor is unlimited. This permits flexibility and more open planning particularly at museum floors.

2. As per Section C26-504.4(a) the aggregate width of openings in Fire Division (required to separate certain occupancies within the building) is unlimited only if the building is sprinklered.

3. Due to the desirability of creating an open two story shopping arcade at the Ground and Second Floor Levels and the simultaneous requirements of a street floor lobby it

seems desirable to provide sprinklers certainly at these levels to assure exiting for all the building occupants.

4. With the introduction of mezzanines in most museum spaces, sprinklers provide an added assurance for the safety of the occupants, particularly in areas where existing combustible construction is to remain.

g. Street Facades

As existing, the buildings do not comply with the following Sections:

1. Section C26-503.1(f)—In buildings classified with occupancy groups C (Mercantile), D (Kitchens, Mechanical Rooms) and E (Offices) exceeding 3 stories or 40 ft. in height openings located vertically above one another in exterior walls shall be separated by a spandrel wall at least 3 ft. high.

The fifth and sixth levels of 159 and 165 John Street and 189 and 191 Front Street have less than 3-ft. spandrels.

This element of fire protection is considered essential; the 3-ft. spandrel requirement is recurrent in many Building and Fire Codes. A detail has been developed in the existing window openings to meet this new requirement.

2. Section C26-503.3—Parapets to be provided on all exterior walls of buildings of construction class IIB, except roofs with a pitch more than 20° to the horizontal.

Flat roofs at 159, 165, 167 and 171 John Street; 189, 191 and 196 Front Street; 91, 92 and 93 South Street have flat roofs without required parapets.

This requirement is not considered crucial as Item 7.a. above. Inasmuch as the addition of a parapet would be a significant modification to the historical appearance of the facades, it is expected that this item of non-compliance will be waived.

3. Section C26-503.5—Exterior trim such as cornices, fascias, etc., may be combustible up to a height of 40 ft.

Existing trim on 92 and 93 South Street and 193 Front Street is combustible and higher than 40 ft.

It is recommended that if the existing trim is to be repaired rather than replaced in total, it remain and be repaired with combustible material.

When existing trim must be completely replaced due to its deteriorated condition, it will be rebuilt with incombustible material.

h. Fire Ratings

The principal elements of the building such as floors, walls and roofs and openings therein must be fire rated to comply with various aspects of the Code. The following is a summation of such Code requirements which influence this project:

1. To conform to the requirements of the Class IIB Construction Classification among certain other provisions as per Table 3-4 vertical exit enclosures must have a rating of 2 hrs., floor construction including beams must have a rating of 1 hr., and roof construction ¾ hr.

The required ratings will be obtained respectively with stair shafts of masonry with steel and concrete stairs and with hung ceilings throughout, under beams and joists, either of fire rated suspended acoustical tile or suspended vermiculite plaster and metal lath.

2. To conform with fire segregation of occupancies as per Section C26-504.1 and Table 5-2, Stores, Kitchens, Mechanical Rooms, Offices and Lecture Hall must be separated horizontally and vertically by fire divisions of 2-hr. construction from Museum spaces.

The required rating is obtained with the rebuilding and repairing of the existing 12-in. brick party walls and the installation of fire rated ceilings as described above in item a. where existing combustible floor construction is to remain. New floors in corridors (hallways) and at the Fourth and Fifth Levels of the Museum will be rebuilt at higher floor elevations of non-combustible construction which in itself can achieve a 2-hr. rating

3. Different tenant spaces to be separated by 1 hr. fire rated construction as per Section C26-504.3(a).

4. Interior corridors (hallways as shown in plan) as per Section C26-604.2(h) require a rating of 1 hr. New floors of reinforced concrete and rebuilt existing masonry walls will provide this protection.

5. Areas of refuge located on the Fourth and Fifth Levels must be separated from each other by 2 hr. fire rated construction as per Section C26-604.5(a). This is provided by rebuilt existing 12-in. brick party walls, new non-combustible floors, and hung fire rated ceilings at the roof.

6. Safe areas which serve public assembly spaces—areas of refuge on the Fourth and Fifth Levels and corridors (hallways as shown in plan)—must be separated from assembly spaces by 2-hr. construction as indicated in Section C26-801.11. This protection will be provided as described in item e. above.

i. Live Loads

The project will be designed in accordance with the required live loads of Reference Standard RS 9-2. Existing floors in some instances will be reinforced and new floors constructed to replace existing floors as described elsewhere in this report.

B. ZONING ANALYSIS

1. The City of New York Zoning Resolution

The following is a list itemizing the various sections of the Zoning Resolution of The City of New York as they apply to the South Street Seaport Renovation project.

Many items are included as points of information and compliance with same is a simple matter and noted as such. Other items are more complex and their application to the project is described in more detail. When the project as it is presently envisioned does not comply with a specific section, such non-compliance is specifically noted.

Incorporated at the conclusion of this analysis are our general comments and considerations. The lot area figure used is based on actual field measurements verified at the Borough President's Office; it varies slightly from the informal survey of the Office of Lower Manhattan Development.

Code Page	Code Section	Content of Section	Remarks
12b	Zoning Map	Lots zoned C5-3CR	
8	Zoning Resolution	Bulk is the term used to describe the size of buildings which incl. h't. and fl. area zoning lot size, bldg. shape relation of exterior bldg. walls to lot lines, and open areas related to bldgs.	
		A commercial bldg. is a bldg. used only for commercial use.	
10		Floor Area is the sum of the gross areas of several floors measured to the face of the exterior walls.	Selecting from area calculation tables (Chapter 1, D.4) the floor area for F.A R. of Scheme A is 165,800; Scheme B is 167,760.
11		Floor Area Ratio is the total fl. area divided by the lot area.	F.A.R. of Scheme A: 165,800 ÷ 33,017 = 5.02 F.A.R of Scheme B. 167,760 ÷ 33,017 = 5.08
		Height Factor is the total floor area divided by the lot coverage.	Height factor of Scheme A: 165,800 ÷ 32,670 = 5.07 Height factor of Scheme B: 167,760 ÷ 32,510 = 5.16
13		Lot Coverage is that portion of a lot, which when viewed directly from above, would be covered.	Lot coverage is approx. 98%.
16		Sign is any writing visible from the outside of a building.	Graphic work behind show window is considered as signs.
102	31-16	C5—Restricted Central Comm. Districts are designed to provide for office buildings and the great variety of large retail stores and related activities which occupy the prime retail frontage in the central business district, and which serve the entire metropolitan region. The district regulations also permit a few high-value custom manufacturing establishments, generally associated with the retail activities, which are regionally oriented.	
	32-00	In Commercial Districts C5 Use Groups 1 to 6 and 9 to 11 are permitted, 7, 8, 12 to 16 are not	
103	32-11	Uses Permitted as of Right (Parking Requirement category shown in parentheses)	
		Use Groups 1 & 2 (Residential all kinds)	It is not anticipated that these Use Groups will be part of the project.
	32-12	Use Groups 3 & 4 Community Facilities, Museums and Libraries.	Use Groups 3 & 4 are in the project and are permitted.
	32-13	Use Group 5 Transient Hotel Accom. (H)	It is not anticipated that this Use Group will be part of the project.
	32-15	Use Group 6 Retail Stores such as:	Use Group 6 is permitted as per paragraph 32-00 in a C5-3CR Zone.
104		A. Convenience Retail or Service Establishments Barber & Beauty Shop (B) Drug Store (B) Eating & Drinking Places (B) Food Store (under 2,000 sq. ft.) (B) Food Store (over 2,000 sq. ft.) (A) Stationery Store (B)	Of the various types of uses listed under Use Group 6, it is anticipated that these uses may be in the project and are permitted.

Code Page	Code Section	Content of Section	Remarks
104	32-15	B. Offices Professional Offices (B_1)	
		C. Retail or Service Establishments Antique Store (B) Art Gallery (B) Book Store (B)	
105		Florist (B) Furniture Store (B_1) Jewelry (B) Music (B) Newsstand (B) Photographic (B) Picture Framing (B) Shoe Store (B) Travel Bureau (B)	
		*D. Public Service Estab. (C)	
106		E. Clubs (D)	
	32-16	**Use Group 7** Home Maintenance & Repair Service and other Community Services such as:	As per paragraph 32-00 Group 7 is not permitted in a C5-3CR Zone.
		Bicycle rental or repair (B_1) Sailmaking establishments (C) Sign Painting (B_1)	Of the various types listed under Group 7, these uses may be desirable but are not permitted.
107	32-17	**Use Group 8** Amusement such as billiard parlors, bowling alleys, auto rental, etc.	As per paragraph 32-00 Group 8 is not permitted in a C5-3CR Zone.
108	32-18	**Use Group 9** Business service such as: *Blueprinting photostating (B_1) *Business schools (B_1) *Physical culture (B) *Musical instrument repair (B_1) *Umbrella repair (B)	Use Group 9 is permitted as per paragraph 32-00 in a C5-3CR Zone. Of the various types listed under Use Group 9, it is anticipated that these uses may be in the project and are permitted.
109	32-19	**Use Group 10** Large Retail establishments such as department stores, variety stores, etc.	It is not anticipated that these uses will be in the project.
109	32-20	**Use Group 11** Custom Manufacturing such as:	Use Group 11 is permitted as per paragraph 32-00 in a C5-3CR Zone.
		*Art needle work, hand weaving or tapestries (F) *Books, handbinding or tooling (F) *Custom ceramic products (F) *Custom clothing (F) *Musical instruments (F)	Of the various types listed under Use Group 11, it is anticipated that these uses will be in the project and are permitted.
110	32-21	**Use Group 12** Large Entertainment facilities such as:	Use Group 12 is not permitted as per paragraph 32-00 in a C5-3CR Zone.
		Eating or drinking places w/o restrictions on entertaining or dancing (D) Historical exhibits (D)	This project is interpreted as a museum, not a historical exhibit.
111	32-22	**Use Group 13** Open amusement establishments such as camps, circuses, etc.	The types of amusement uses listed under this Group are not in the project and as per paragraph 32-00 are not permitted in a C5-3CR Zone.
111	32-23	**Use Group 14** Special services related to boating. Of the types of boating services listed, it is conceivable that the following could be in the project:	As per paragraph 32-00, Group 14 is not permitted in a C5-3CR Zone, consequently these uses should be avoided.
		Docks for pleasure boats (H) Fishing Tackle sales (B_1)	
112	32-24	**Use Group 15** Large open amusement establishments such as animal exhibits, ferris wheels, penny arcades, etc.	The types of amusement uses listed under this Group are not in the project and as per paragraph 32-00 are not permitted in a C5-3CR Zone.

*For explanation see Res. Sec. 32-423.

Code Page	Code Section	Content of Section	Remarks
112	32-25	**Use Group 16** Semi-industrial uses such as Auto sales, woodworking shops, tool and tire, vehicle storage, warehouses, etc.	The types of industrial uses listed under this Group are not in the project and as per paragraph 32-00 are not permitted in a C5-3CR Zone.
115	32-41	In C5 district except as specifically provided in Sections 36-11 and 36-61, loading berths shall be required to be enclosed within bldgs. which are created by new development or which are enlarged or extended resulting from a change of use.	See Section 36-62 for required number of berths which must be enclosed.
	32-411	In C5-3CR districts all uses shall be in completely enclosed bldgs.	Open-air displays are not anticipated in this project.
116	32-423	In C5-3CR districts, uses in the Use Groups 6, 9 or 11 and marked with asterisks in the Use Group listing shall be located only (a) on a floor above or below the ground floor, or (b) on the ground floor, but not within 50' of any street wall of the building and with no show window facing on the street.	Some specific uses anticipated in this project are indicated with asterisks on these sheets and must be located on the second floor.
116b	32-50	Special Provisions Applying Along District Boundaries in regard to signs.	Limitations placed by this section are not applicable inasmuch as the site does not adjoin a Residential District.
119	32-62	Accessory Business Signs are permitted in C5 Districts subject to limitations as stipulated in Sections 32-64 through 68.	
	32-63	Advertising Signs are not permitted in C5-3CR Districts.	An advertising sign is a sign which directs attention to a business service, etc. offered elsewhere than upon the same zoning lot.
	32-64	Illuminated non-flashing business signs located in a window within a building whose surface area does not exceed 8 sq. ft. shall be exempted from restrictions.	All signs will be behind show windows.

Code Page	Code Section	Content of Section	Remarks
120	32-642	In C5 Districts, the surface area of non-illuminated signs shall be three times the street frontage but in no event larger than 200 sq. ft.	Signs of this size are not anticipated to be within the project although they are permitted.
121	32-652	No sign shall project across a street line more than 18 in. for double or multi-faced signs or 12 in. for all other signs.	
122	32-655	Signs shall not project more than 25 ft. above the curb level.	
	32-656	Vertical signs not more than 28 in. wide may extend 15 ft. above roof level.	
123	33-122	The maximum floor area ratio for Commercial Bldgs. in a C5-3CR District is 15.00 (See Section 88-04)	The floor area ratio of Scheme A is 5.02 and of Scheme B is 5.08.
130	33-25	Side yards are not required in C5 Zoning District. If provided, they must meet requirements of this section.	Side yards are not provided in the project.
131	33-28	No rear yard or rear yard equivalent is required in C5 Zoning Districts for sites which occupy an entire block.	The project occupies an entire block, hence, no rear yard equivalent is required.
136	33-432	Maximum height of front wall is 85 ft. or six stories whichever is less.	The existing bldgs. and the new bldg. are below this max. height.
158	36-21	Required off-street parking for C5 Districts:	Off-street parking is not required for the uses anticipated.
158		Gen. Retail — none req.	
158		Places of Assembly — "	
159		Light Mfg. — "	
159		Storage — "	
160		Clubs — "	
161		Libraries — "	
161		Museums — "	
176	36-62	Accessory Off-Street Loading Berths are required for all C5 Districts for all new developments. If the use of any building or zoning lot is changed or enlarged, the requirements shall apply to the floor area of the changed or enlarged portion.	

Code Page	Code Section	Content of Section	Remarks
176	32-62	Offices: None required for the first 100,000 sq. ft.	There are 46,060 sq. ft. of offices, hence, no loading berth is required.
		Commercial: Use Groups 6A, 6C: First 25,000 sq. ft. — none Next 15,000 sq. ft. — 1 Next 15,000 sq. ft. — 1	There are 39,660 sq. ft. of stores and dining space, consequently 1 loading berth is required.
178	36-63	For zoning lots with more than one use, the floor area for each use shall determine which berths are required.	As no berths are required for Museum or Office uses, only 1 berth is required for stores.
179	36-65	Requirements for loading berths may be waived by the Commissioner of Bldgs. if he determines that there is no way to arrange berths in accordance with Section 36-682.	The arrangement of berths as per Section 36-682 seems feasible.
180	36-681	Size of required berths: Length / Width / Vert. Clrnce. Offices: 33′ / 12′ / 12′ Commercial: 33′ / 12′ / 14′	
180	36-682	A loading berth may not be located closer than 50 ft. from street intersection unless permitted by the Commissioner of Bldgs.	
310	88-04	Development rights from each of the granting lots may be conveyed, or otherwise disposed of all in accordance with the provisions of this District, except that with respect to zoning lots located on Parcels 6, 7 and 9 as identified on the transfer District Map, only those development rights in excess of (a) an amount equal to the product of the Lot area of each such zoning lots multiplied by 5 or (b) the total floor area of all existing buildings on any such zoning lot, whichever excess amount is smaller, may be so conveyed or otherwise disposed of. The City Planning Commission shall certify such initial transfer from the granting lots.	This project is a granting lot. The F.A.R. of Scheme A is 5.02. The F.A.R. of Scheme B is 5.08. These are schematic design figures only. F.A.R. can be made 5.0 for the final design. The Burling Slip studies 2, 3 and 4 assume that some of the development rights will be available to the project inasmuch as these studies include stepped terraces or sculptural forms extending above established grade.

2. The City of New York Zoning Resolution—Summary

a. Intended Uses

The anticipated uses in the project, namely Museum (Use Group 3A), Offices (Use Group 6B), Stores (Use Group 6A and 6C), and Dining (Use Group 6A) are permitted in the Zoning District of the project C5-3CR.

b. Sign Work

Signs and other graphic work are permitted although controlled by the Zoning Resolution. Present proposals to limit sign work to inside show windows is, of course, well within the limitations of the law.

c. Bulk Regulations

The existing buildings and the new addition at the corner of South and John Streets match the maximum permitted floor area ratio. The 100% coverage of the zoning lot is permitted and the height of the existing and new front walls do not exceed the permitted maximum height.

d. Parking

Off street parking is not required to be part of the project for the uses proposed in a C5 Zoning District.

e. Off-Street Loading Berth

One enclosed loading berth is required to serve the Commercial uses of the project. The berth must be fully enclosed within the building and of a size stipulated in Section 36-681. The location of said berth should be determined once the decision is made as to whether a development of Burling Slip will be included in the scope of the project. The berth is not shown on the present schematic plans.

f. Special South Street Seaport District

This project is on a granting lot within the special South Street Seaport District. Development rights, excess of an amount equal to the product of the lot area of the zoning lot multiplied by 5, may be conveyed to receiving lots. The present proposals have a floor area ratio of 5.02 for Scheme A and 5.08 for Scheme B. These are based on schematic design calculations. The final design can be within the F.A.R. limitation. The Burling Slip Plaza will be using some of the development rights.

g. Pedestrian Bridge

A pedestrian bridge is proposed to connect Korvettes with the second floor of this project. Usually a Board of Estimate permit must be granted prior to construction.

C. FIRE DEPARTMENT REGULATIONS

The Architect, Consulting Engineer, and the Building Code and Specification Officer of the Design and Construction Dept. of the UDC met with the City of New York Fire Department Division of Fire Prevention to discuss the project.

1. The project with the aid of the drawings was described and the following main points were mentioned.

a. The project entails the restoration of some 18 separate existing buildings and the construction of one new structure. The project should be considered as one building that includes the entire block between Fulton and John Streets, and South and Front Streets in lower Manhattan. The site is roughly 135 ft. x 245 ft.

b. The Schermerhorn Row landmark buildings are the structures with peaked roofs located on the block front of Fulton St. All the existing structures on the block will be fully restored.

c. The existing courtyards in the middle of the block will be filled in with new construction to create the service spine of the project. Contained in the spine will be a central corridor set at each existing floor level of the Schermerhorn Row buildings. Elevators and two vertical means of egress (stairs) will serve each corridor, reach all floors and terminate at the roof. A third stair is located at the eastern perimeter of the building and is not reached by the corridor.

d. The Schermerhorn Row buildings are five-story structures with the fifth floor essentially a two-story space within the peaked roof area. All other existing structures are six stories. Due to variation in floor levels from the Schermerhorn Row, the 159 John Street building, while actually six stories in height, is served by a seventh level of stair construction.

e. The existing buildings are Construction Class IIB Combustible. The new building and the new center corridor, stairs, elevator shafts will be of non-combustible construction. The Construction Class of the project, in total, must be considered as IIB.

f. The project will house Stores, Offices, Restaurants and Museum/Library spaces. The Occupancy Group of the project is F-3.

2. The New York State Urban Development Corporation has directed the Architect to analyze the project under the terms of the New York City Building Code. Drawings will not be filed at the Building Department. The Architect's own evaluation of the Code will be utilized as the basis for the project.

3. The Third, Fourth, Fifth and Sixth Levels will be divided into three Fire Areas of approximately the same size separated by two fire walls running through the entire block and extending a minimum of 4 in. above roof construction. These new "Fire Divisions" are the existing party walls between 4 and 6, and 10 and 12 Fulton Street.

4. The Fire Divisions are essential to create three "Areas of Refuge" on the Fourth and Fifth Levels to reduce the required number of vertical exits as established by the New York City Building Code.

5. The two double center stairs will terminate at the Ground Floor in a Street Floor Lobby. The third stair reaches the street directly. The Street Floor Lobby has two separate exits; one on Fulton and the other on Front Street. The Lobby is designed to be a two-story space with a shopping arcade on the Ground Floor and the Second Floor. The Second Floor arcade, in addition to being served by the two double center stairs, is also reached by an escalator in the Fulton Street entrance and an accessory stair in the Front Street entry. Fire Divisions do not extend through the building on the Ground and Second Floors.

6. Due to the complexity of occupancy, to the non-combustible construction of the existing buildings, and to the desirability of show windows for the stores located on the two story Street Floor Lobby shopping arcade, The New York State Urban Development Corp. has recommended that sprinklers be provided throughout the building. Sprinklers will be provided in all spaces except Stairs, Toilets, and Mechanical Rooms.

The New York City Building Code only requires sprinklers in the shopping areas and their inclusion throughout the building is over and above those required by the Code.

Sprinklers will be provided in the peaked roof areas of the Schermerhorn Row.

The sprinkler system will be one interconnected system.

7. The Fire Department recommended the following:

a. As per New York City Building Code, fire alarms and manual pull stations must be located in all public assembly areas and spaces.

b. Fire alarm and sprinkler alarm are to be hooked up to a Central Station connection.

c. Smoke detectors located in ventilation system as per New York City Building Code should be hooked up to fire alarm.

d. Electro-magnetic hold-open devices should be located on all rated fire doors which are normally to remain open and to be interconnected with fire alarm system.

e. Siamese connections to be located near hydrants at grade on exterior walls as per New York City Code which will generally be

2 each on Fulton and John Streets, and 1 each on South and Front Streets.

f. Range and oven hoods to be provided in Restaurant Kitchens as per New York City Building Code.

g. The Fire Dept. considers the project a Medium Hazard Occupancy.

h. As existing floor levels are not in line and, in some cases, a half a level apart, the Architect should pay particular attention to fire-stopping void spaces to prevent flame spread from floor to floor. Fire-stopping is to be accomplished with non-combustible materials.

8. The Architect indicated that there was the possibility that residents presently in the buildings might remain or be relocated into the 159 John Street and 189 Front Street buildings. In this event, these two buildings would remain "as is" and no changes would be made as part of this project, the assumption, in part, being that these two buildings presently occupied are legal.

9. The below grade mechanical room located in the basement of the new building was discussed. The two separating exits were noted. It was decided that a separate corridor reaching the two exits and the Meter Rooms would not be required and that an aisle space around the mechanical equipment would be adequate.

There will be one heating system for the project serviced by Con Edison steam.

10. The Fire Department indicated that the Division of Fire Prevention should be informed of any major changes or revisions to the project and that the Architect and Owner should feel free to consult with them in the future. The suggestions and recommendations of the Fire Dept. have been incorporated into the scope of the project.

CHAPTER IV

OUTLINE SPECIFICATIONS

A. CONSTRUCTION CONTRACT REQUIREMENTS

Division 1—General Requirements

The terms and conditions of the standard UDC Bidding and Contract Documents are part of this project. The significant items of these Documents include Equal Opportunity Employment provisions, adherence to prevailing wage rates and standards as issued by the U.S. Dept. of Labor, competitive bidding for one prime contract with costs developed in accordance with UDC Construction Contract Cost Principles.

While it is most certainly the intent of the project to retain the existing well known restaurants no provisions, at this time, have been made for temporary on site facilities to permit their continuing operation during construction. It has also been assumed that at the start of construction the buildings will be delivered vacant to the Contractor and that construction of the entire project will proceed simultaneously.

Different arrangements, if necessary, will have to be specifically defined.

B. GENERAL CONSTRUCTION

1. Division 2—Site and Preparatory Work

The existing gas station on the corner of South and John Street will be demolished and below grade fuel tanks removed. Excavation for basement under new corner building will be executed below established water line. Dewatering and sheet piling techniques must be employed for solution A and the necessity for such techniques greatly reduced in solution B.

Existing party walls adjoining new corner building site of 91 South Street and 171 John Street will be underpinned.

Pile foundations are to be driven to support new corner building and concrete pile caps poured.

Excavations for footings of new columns which support the Museum floors in Schermerhorn Row, new elevator pits, and mechanical and electrical distribution trench must be executed adjacent to existing bearing walls and footings. Existing walls and footings will be underpinned accordingly.

Existing slabs on grade will be removed in preparation for new floor slabs at Ground Level in all buildings except 159 John Street which has a dirt floor basement.

Prepare for new foundation wall and new pressure slab in 167 and 171 John Street to combat below curb level water conditions.

Excavate for and install new porous wall drainage pipes at the base of all existing and new foundation walls, pitched to sump pump located in basement of new corner building. Pipes are to relieve tidal ground water and hopefully avoid seepage into finished Ground Level areas. However, said pipes will not be used to reduce hydrostatic pressures on structural elements.

Remove existing Ground Level wood floor of 91 South Street and fill in crawl space for installation of new slab on grade.

Remove all refuse and debris from buildings and courtyard. Remove all fire escapes.

Remove existing Fifth Level of the entire Schermerhorn Row and Sixth Level of 92 and 93 South Street due to existing low headroom conditions.

Remove a portion of the Second Level of 167 and 171 John Street to create a mezzanine due to a low headroom situation and the Second Level of 4 Fulton Street and 193 Front Street to create the two story shopping arcade entries.

Demolish the upper part of 12 Fulton Street to unify the historic Schermerhorn Row roof line.

Remove floors where new elevator, mechanical, and stair shafts are to be created and remove portions of existing bearing walls where indicated.

Insect and rodent control practices must be employed throughout the construction of the project and a qualified exterminator engaged accordingly.

Demolish existing sidewalks and prepare for new concrete sidewalks at conclusion of project.

In solution B sheet paving and parking area island will be removed to prepare for new plaza paving.

2. Division 3—Concrete

Foundation walls and basement slabs of new building to be concrete pressure slab construction. New foundation walls and Ground Level slabs in 169 and 171 John Street, mechanical and electrical distribution trenches, and elevator pits to be executed in a similar manner.

New slabs on grade to be provided in all existing buildings. Slabs to be poured atop membrane waterproofing with polyvinyl water stops installed in all construction joints and junctures of slabs and walls.

Superstructure of new corner building to be executed entirely of poured in place reinforced concrete, portions of which are to remain exposed.

Where new floors are to be provided within the existing buildings and courtyards they are to be precast concrete plank on steel beams. Plank to receive a 2 inch concrete topping with wire mesh reinforcement.

Install new steel curbing and concrete sidewalks in accordance with New York City Dept. of Highways regulations.

3. Division 4—Masonry

All existing exterior brick work to be repointed with joints raked out and regrouted; broken or decomposed bricks to be removed and replaced with solid whole bricks salvaged from demolished walls of this project.

All existing interior brick work in Museum and tenant spaces to remain exposed. Where new door openings are to be made and existing window and door openings closed, work shall be done with whole bricks salvaged as described above.

New corner building to have facade executed with face brick manufactured to match adjoining brick of the Schermerhorn Row and to be laid up in identical bond.

Existing non-functioning chimneys will be rebuilt to original height in the Schermerhorn Row buildings.

After all the masonry work is completed within a given room or on an entire facade, all new and existing brickwork will be lightly sandblasted to clean and blend in the work.

All existing wood lintels over existing window openings to be removed and replaced with steel lintels. Existing outside brownstone lintels to remain in place, backed up, and supported by new steel lintels. New fabric flashing to be installed over the heads of all existing window openings as the new lintels are installed.

Existing stone trim, window sills, and lintels to be cleaned down and repointed.

In solution A the Ground and Second Level floors in the shopping arcade and the Ground Level floor of the new building to be slate executed in a radial two-tone pattern. Roof terrace to be paved in slate.

In solution B the brick paving design of the plaza will be carried into and through the Ground Level floors of the Museum and shopping arcade and carried through to the Second Level shopping arcade.

4. Division 5—Metals

Museum floors in the Schermerhorn Row buildings to be supported on new steel columns and beams. New structural steel members to be provided for this purpose and to support all new construction within the existing structures to install new elevators, stairs and corridors.

Existing wood beams which support masonry walls to be replaced with new structural steel members.

Ornamental Metal work to include the repair of existing cast iron store front members and their reproduction as required, access plates to main mechanical and electrical distribution trench, and pipe railings, ladders and other miscellaneous items.

New stairs will be of steel pan construction.

5. Division 6—Carpentry

Existing wood joists and subflooring will be carefully checked, patched and repaired. Rotted, burnt or excessively deflected members will be replaced.

Wood structure in Schermerhorn Row attics in 14 through 18 Fulton Street will be checked and repaired as required; their construction will be duplicated in 12 Fulton Street and restored in the existing attic structures in 4 through 10 Fulton Street.

The existing wood cornice substructure of 159 John Street and 193 Front Street will be repaired in wood and will be made ready for metal cladding. The substructure of the existing Second Level cornice over the existing store fronts of 91 through 93 South Street and 2 Fulton Street will be entirely rebuilt of wood to match existing.

The dormers and mansard roof of 92 and 93 South Street will be completely rebuilt of wood.

6. Division 7—Moisture Protection

The pitched roofs of the Schermerhorn Row and the mansard roof and dormers of 92 and 93 Front Street are to be clad in terne coated stainless steel which develops a patina gun metal in color. Gutters, ridges, cornices and corners to be trimmed in copper. Copper and terne to be separated by neoprene gaskets to prevent electrolitic action.

Flat or slightly pitched roofs to be covered with built-up roofing with slag finish. All flashing and gravel stops to be in copper.

Reclad cornices of 159 John Street and 193 Front Street in terne coated stainless steel and completely rebuilt Second Level cornice over store fronts of 92 and 93 South Street.

Provide membrane waterproofing under slabs on grade, toilets and kitchens, and roof terrace.

Dampproof the interior of all exterior walls which will be covered by self-furring metal lath and plaster.

Waterproof the exterior of all below grade walls with cement coat waterproofing.

Skylights in the roof of 4 through 12 Fulton Street to be of anodized tubular aluminum construction.

7. Division 8—Doors, Windows and Glass

All existing windows and doors are to be removed and replaced by new elements except for the original arched doorway of 2 Fulton Street which will be restored.

New windows set in existing openings from the Second Level to the top floors to be of bronze anodized aluminum vertically pivoting sections for cleaning purposes. The large Fifth Level windows of 193 Front Street will have fixed anodized aluminum window sections.

Ground Level exterior show windows and entry doors as well as interior Ground and Second Level shopping arcade show windows and doors to be constructed of fixed bronze anodized aluminum sections of minimum profiles with narrow stile doors.

All window sash in the new corner building to be fixed bronze anodized aluminum sections.

Interior door openings to have hollow metal frames with fire rated wood doors.

All Ground Level exterior windows and doors as well as all interior Ground and Second Level shopping arcade windows and doors to be glazed in clear tempered plate glass. All exterior windows at the Second Level and above to be glazed in gray tinted polished plate glass. Skylights to be glazed in solar energy reducing wire glass.

8. Division 9—Finishes

Office, Restaurant and Store tenant spaces to be delivered largely unfinished. Museum spaces to be finished and ready for installation of exhibits, furniture, etc.

As previously mentioned in Division 4 the floors of the Ground and Second Level shopping arcade, the Ground Floor Museum and the Dining Terrace are to be paved in slate. Other Museum floors and all Office, Restaurant and Store floors to be finished with vinyl asbestos floor tile. Where tile is to be installed on existing or new wood subfloors, a hardboard underlay will be provided. Thin set ceramic tile floors will be provided in all Toilet and Janitor Closets.

All exterior walls to be finished in plaster set on self-furring metal lath after dampproofing is installed. Interior party walls to remain, exposed with brick lightly sand-blasted as described in Division 4. Corridor walls to be finished with plaster on both sides. Toilets and Janitor Closets to have thin set ceramic tile wainscots with plaster walls above.

Beams and columns in Museum spaces to be fireproofed with metal lath and plaster furring. Beams and columns in other spaces to be fireproofed with fire rated wallboard.

Ceilings of all Museum spaces, Shopping Arcade and Corridors to be suspended plaster. Ceilings in Offices, Restaurants and Stores to be suspended fire rated wallboard.

Paint all plaster and wallboard surfaces on the interior. Paint all cornices and exterior trim of the entire project and the facades of 171 and 167 John Street, which are now stuccoed and painted in imitation of stone.

9. Division 10—Specialties

Ceiling hung metal toilet partitions will be provided throughout. Signs and directories will be included in the project and coordinated with the overall scheme of the project.

10. Division 11—Equipment

No work in this Section.

11. Division 12—Furnishings

Drapery hardware will be provided at all windows to assure a coordinated street facade.

Recessed floor mats will be provided at all entrances.

12. Division 13—Special Construction

No work in this Section.

13. Division 14—Conveying Systems

One escalator to be provided at the Fulton Street entry operating at 75 ft. per minute speed.

Four low-overhead elevators will be provided with conventional, counter-weighted traction type elevator machinery located alongside the hoistway at a lower landing. The installation will utilize an underslung roping arrangement that requires a minimum overhead dimension above the top floor. Elevators will be 2500 lbs. capacity with a 100 ft. per minute speed.

C. MECHANICAL

1. Division 15, Section 15A—Plumbing and Drainage

All existing plumbing work shall be removed.

An adaptable plumbing and drainage system shall be provided for the new and reconstructed existing buildings to serve the four functions of the complex including museum, retail stores, commercial office spaces and restaurant facilities. Entire installation shall be in accordance with New York City Building Code.

a. Museum and Common Areas

1. Provide all necessary plumbing fixtures, equipment, piping, valves, insulation, etc., as required for a complete plumbing installation. All fixtures shall be complete with carriers, seats, trim and accessories. Equipment rooms to be provided with floor drains and hose bibbs.

2. Water closets to be wall hung type, vitreous china. Urinals to be wall hung type, vitreous china. Lavatories to be wall hung type, vitreous china. Service sinks to be acid-resisting cast iron. Flush valves for toilet rooms to be exposed.

b. Stores

1. Provide capped outlets for water, vent piping and sanitary drainage in rear of store areas in the form of "wet columns".

2. Cold water, hot water and hot water recirculation piping shall be provided from central equipment room beneath Exhibition Hall.

3. Tenant to provide all toilet fixtures, package kitchen units, electric water coolers, etc., including all roughing and connections to plumbing facilities. All maintenance of equipment to be by tenant.

c. Offices

1. Provide capped outlets for water, vent piping and sanitary drainage in rear of office areas in the form of "wet columns".

2. Cold water, hot water and hot water recirculation piping shall be provided from central equipment room beneath Exhibition Hall or at the ground level under the stepped up plaza of solution B.

3. Tenant to provide all toilet fixtures, package kitchen units, electric water coolers, etc., including all roughing and connections to plumbing facilities. All maintenance of equipment to be by tenant.

d. Restaurants

1. Provide capped outlets for water, sanitary drainage, gas and vent piping for each restaurant.

2. Cold water, hot water and hot water recirculation and gas piping shall be provided from central equipment room beneath Exhibition Hall or at the ground level under the stepped up plaza.

3. Tenant to provide all roughing, kitchen equipment including connections, toilets and booster hot water heating facilities.

e. Storm Water Drainage

A new storm water drainage system shall be provided for all buildings, including roof drains, inside leaders and house sewer connections to existing street sewers.

Duplex sump pumps to be provided for basement and mechanical room floor drains and area drains.

Sump pump to be connected to tile drain pipes set at the base of existing foundation walls by the General Construction Contractor.

f. Hot Water System

A complete hot water circulating system shall be provided for general use throughout the building; including connections to all facilities. Hot water instantaneous type generators will provide 140°F. hot water for general use. Central system located in mechanical equipment room will generate hot water in medium pressure steam heat exchangers. Steam condensate cooler will preheat water before condensate is discharged to city sewer.

g. Cold Water System

The building will be provided with a single metered water service.

A separate sprinkler service will be provided from a point of connection to street main to a point inside building wall with valved connection for sprinkler system.

h. Sanitary Drainage System

Sanitary drainage and vent systems will be provided including connections to plumbing fixtures, floor drains and other equipment requiring same. House drain will be provided connecting to existing sewers. All drainage from basement area will be pumped utilizing duplex sewage ejector.

i. Gas System

A gas service line from street gas main to the building will be provided in gas meter room arranged for individual tenant metering.

2. Division 15, Section 15B—Heating, Ventilating, and Air Conditioning

All existing heating and air conditioning equipment shall be removed.

An adaptable mechanical system shall be provided suitable for the new and reconstructed existing buildings to serve the four functions of the complex including museum, retail stores, commercial office spaces and restaurant facilities.

A central heating and cooling plant will be located below the ground level of the exhibition hall or at the ground level, under the stepped up plaza of solution B. Equipment to include absorption refrigeration units, hot water space heating heat exchangers, domestic hot water heaters and air handling equipment for the exhibition hall and library.

a. Museum and Common Areas

1. New exhibition hall, museum entrance and library to have a multi-zone air handling system to provide comfort conditions year-round. Fan equipment to be located in the basement of the new exhibition hall building or under the plaza with all ductwork concealed within new construction.

2. Museum areas within the existing reconstructed buildings to have a separate multi-zone air handling system located in roof equipment room, adjacent to areas to be served.

3. Perimeter areas to have supplementary wall-to-wall hot water fin-pipe radiation. System to be arranged with vertical risers at building walls to avoid soffits or hung ceilings.

4. All necessary toilet mechanical ventilation shall be provided.

5. All facilities necessary to provide heating, cooling and ventilation year-round shall be included.

b. Stores

1. Chilled water and hot water heating mains extended from central plant to rear of store shall be provided with capped valves for connection. Each store to have sufficient heating-cooling capacity to satisfy comfort requirements.

2. Vertical outside air intake shafts provided in the rear of alternate spaces shall be available for air handling units.

3. Perimeter areas to have supplementary wall-to-wall hot water fin-pipe radiation. System to be arranged with vertical risers at building walls to avoid soffits or hung ceilings.

4. Each tenant to install an independent system to suit individual requirements including air handling unit, ductwork, controls and accessories to complete system. Tenant to connect to outside air intake duct and chilled water and hot water heating piping. Air handling unit to be located within space. All maintenance of equipment to be by tenant.

c. Offices

1. Chilled water and hot water heating mains extended from central plant to rear of office shall be provided with capped valves for connection. Each office to have sufficient heating-cooling capacity to satisfy comfort requirements.

2. Vertical outside air intake shafts provided in the rear of alternate spaces shall be available for air-handling units.

3. Perimeter areas to have supplementary wall-to-wall hot water fin-pipe radiation. System to be arranged with vertical risers at building walls to avoid soffits or hung ceilings.

4. Each tenant to install an independent system to suit individual requirements including air-handling unit, ductwork, controls, and accessories to complete system. Tenant to connect to outside air intake duct and chilled water and hot water heating piping. Air-handling unit to be located within space. All maintenance of equipment to be by tenant.

d. Restaurants

1. Chilled water and hot water heating mains extended from central plant to rear of each restaurant shall be provided with capped valves for connection. Each restaurant to have sufficient heating-cooling capacity to satisfy comfort requirements.

2. Outside air intake and exhaust air openings for toilets and kitchen to be provided in building.

3. Perimeter areas to have supplementary wall-to-wall hot water fin-pipe radiation. System to be arranged with vertical risers at building walls to avoid soffits or hung ceilings.

4. Tenant to install independent system within space to suit requirements including air handling units for comfort cooling, heating and kitchen make-up air. Tenant to connect to outside air ducts and chilled water and hot water heating piping. Tenant to provide mechanical exhaust ductwork and equipment for kitchen hoods and dishwashing areas and to extend sheet metal ductwork, registers and diffusers throughout space to achieve comfort conditions. All maintenance of equipment to be by tenant.

e. Heating Energy Supply

The building heating system shall be connected to the Con Edison underground distribution system for district steam service. Installation shall be complete with all necessary meters, perssure reducing stations, safety valves, flash tanks, traps and accessories. Con Edison has advised that steam distribution facilities are available for the entire South Street frontage.

Steam service shall serve the following systems:

1. Space heating systems.
2. Hot water space heating heat exchangers.
3. Absorption refrigeration equipment.
4. Domestic hot water heat exchangers.

f. Air Conditioning Supply and Equipment

Provide two steam absorption units complete with necessary piping, controls and accessories for a central chilled water cooling system. Equipment to include condenser water, chilled water and standby pumps. Water cooled condensers in absorption units shall be served by roof mounted cooling tower.

A pneumatic control system shall be provided complete with duplex compressor, refrigerated aftercooler, accessories, piping, etc., for a complete temperature control system.

g. Sprinkler System

A complete automatic, wet system shall be provided connected to a central supervisory station and in compliance with New York City Building Department requirements.

Sprinkler system is to be provided for entire building and shall be complete with water services, siamese connections, and alarm equipment.

D. ELECTRICAL

1. Division 16—Electrical

All existing electrical and telephone facilities shall be removed.

New underground electric and telephone services shall be provided. Services will be extended into the basement of the new Exhibition Hall building or under the stepped up plaza.

a. Museum and Common Areas

1. Separately metered electrical distribution system which would serve the lighting in the museum and public areas, the central air conditioning equipment and the office areas.
2. Telephone distribution system and wiring.
3. Lighting system.
4. Emergency power system.
5. Security and fire alarm systems

b. Stores

1. Separate metered electrical distribution system originating from the switchboard room in the museum.
2. Electric feeder shall be terminated in each store with a panel box.
3. Telephone conduit shall be terminated in each store.
4. All other electrical facilities including receptacles, telephone outlets, general lighting, show window lighting, air handling equipment shall be the responsibility of the tenant.

c. Offices

1. Electric feeder shall be terminated in each office with a panel box.
2. Telephone conduit shall be terminated in each store.
3. All other electrical facilities including receptacles, telephone outlets, general lighting, air handling equipment shall be the responsibility of the tenant.

d. Restaurants

1. Separate metered electrical distribution system originating from the switchboard room in the museum.
2. Electric feeder shall be terminated in each restaurant with a panel box.
3. Telephone conduit shall be terminated in each restaurant.
4. All other electrical facilities including receptacles, telephone outlets, general lighting, kitchen equipment, air handling equipment shall be the responsibility of the tenant.

e. Electrical Distribution

1. Electric service to originate from Con Edison transformer vaults in the street.
2. Service to be 120/208 volt three phase, four wire.
3. Service switchboard to be circuit breaker type.
4. Feeders to be rigid galvanized steel with copper or aluminum type THW cable.
5. Metering equipment to be as per Utility Company requirements.
6. Panel boards to be circuit breaker type.
7. All wiring to be steel E.M.T. with copper conductors (Type TW) in accordance with N.Y.C. Electrical Code.

f. Lighting

1. Museum
    a. Fixed lighting shall be incandescent. Lighting level of fixed lighting to be approximately 25 foot candles.
    b. A system of plug-in adjustable spotlights shall be used for high-lighting exhibits.
2. Common Areas (Lobbies, Arcades, Public Halls, Etc.)
    a. Lighting to be primarily fluorescent, 2 foot surface mounted squares. Lighting level to be approximately thirty-five foot candles.
3. Stores (At Tenant's Expense)
    a. Show window lighting to be kept uniform in each store to control continuity of appearance.
    b. Lighting design shall be as per tenant selection.
    c. A drop ceiling valance will be provided inside the glass of the show windows, properly lit from reflected fixtures, to permit identification signs as part of an established general design.
4. Offices (At Tenant's Expense)
    a. Suggested lighting shall be two foot by four foot surface mounted fluorescent. One unit serving approximately 75 square feet.
    b. Layout shall be determined by tenant's partition requirements.
5. Restaurant (At Tenant's Expense)
    a. Lighting design shall be as per tenant's selection.

g. Receptacles

1. Museum

    a. New building—an underfloor duct system to be installed to provide the flexibility for the changing exhibits.

    b. Existing building—a system of metal molding installed on the walls to provide the flexibility for the changing exhibits.

2. Common Areas (Lobbies, Arcades, Public Halls, Etc.)

    a. Receptacles for cleaning equipment to be installed.

3. Tenant Areas (Restaurants, Offices and Stores)

    a. Receptacles to be installed as per tenant requirements at tenant's expense.

h. Telephone Distribution System

1. Telephone service to originate from street as indicated on the drawings.

2. An empty conduit to be terminated in each rental space (stores, offices and restaurant).

3. Public pay phones to be installed in the common areas.

4. Telephone outlets to be installed in museum as required.

i. Emergency Power System

1. A generator shall be installed.

2. The generator will start automatically in the event of a power failure.

3. An automatic transfer switch to be installed to transfer power from normal to generator and from generator to normal source.

4. Some of the museum lighting, some of the common areas, all of the stairs and exits, and the security system will be included.

5. An elevator transfer system will be installed to permit operation of one elevator at a time. When that elevator has been brought to the ground floor, power will be transferred to the other elevator, etc.

j. Security and Fire Alarm Systems

1. Electrically supervised coded fire alarm system to be installed.

2. Supervised zoned water flow alarm system to be installed.

3. Door security system to be installed.

4. Watchman tour system to be installed.

CHAPTER V
COST

A. TOTAL COST ESTIMATE—SOLUTION A

The following schematic estimate is based on prices as of April 1973 and is based on Solution A which is the project as originally conceived: essentially the curved facade stepped roof terrace building with the mechanical room in a basement below the building.

GENERAL CONSTRUCTION	$4,475,700	
PLUMBING & DRAINAGE	290,000	
HVAC	1,071,000	
ELECTRICAL	736,000	
TOTAL BUILDING COST		$6,572,700

Price includes Design Contingency. An Additional Contingency of 10% for Field and Construction is recommended, due to unforeseeable existing foundation conditions.

The total project cost must include some allowance for Site Work. See the following cost estimates for the Development of Burling Slip.

SUMMARY—GENERAL CONSTRUCTION—SOLUTION A

The General Construction estimates are developed considering the construction cost to reroute the existing buildings separated from the new building.

Alterations to Existing Buildings

1.	Foundation Work @167-171 John Street	27,586		
2.	Exterior Surfaces	526,115		
3.	New Interior Structural Work	322,750		
4.	Add. to Floor Load Cap. Floors 4 & 5	346,930		
5.	Carpentry & Floor Rehab.	225,000		
6.	Vertical Transportation	221,000		
7.	Interiors	1,001,840		
8.	Specialties	160,000		
9.	Underpinning	27,000		
	Direct Cost		2,858,221	
	25% G.C. Mark-Ups (approx.)		714,579	
	Total General Construction			3,572,800
	Total G.C.—New Bldg.			902,900
	Total G.C.			$4,475,700

BREAKDOWN—GENERAL CONSTRUCTION—SOLUTION A
ALTERATIONS TO EXISTING BUILDINGS

Item	Description	Quantity	Unit	Unit Price	Amount	Total
1.	Foundation Work @161-171 John St.					
	a. Pressure Slab-Basement					
	Concrete	130	cy	40.00	5,200	
	Forms	360	sf	1.10	396	
	Reinf.	18,500	lbs.	.30	5,550	
	Admixtures				300	
	Misc.				500	
	b. Foundation Walls					
	Concrete	30	cy	43.00	1,290	
	Forms	1,440	sf	1.50	2,160	
	Reinf.	4,300	lbs.	.30	1,290	
	Admixtures				100	
	Misc.				300	
	c. Excavation				1,000	
	d. Dewatering				7,500	
	e. Misc.				2,000	
						27,586
2.	Exterior Surfaces					
	a. Demolition & Removal				127,000	
	b. New Windows	6,260	sf	10.00	62,600	
	c. New Brickwork	7,000	sf	6.00	42,000	
	d. Repoint Exist. Brick	15,300	sf	.40	6,120	
	e. Steam Clean Exist. Brick	15,300	sf	.40	6,120	
	f. Rehab. Exist. Stonework				24,500	
	g. Scaffolding				5,400	
	h. New Storefronts	2,990	sf	15.00	44,850	
	i. Entrances & Doors	1,260	sf	15.00	18,900	
	j. Sloped Roof					
	Replace Wood Framing	7,850	sf	1.50	11,775	
	Terne Metal Roofing	15,700	sf	4.50	70,650	
	Rehab. & Dormers				2,000	
	k. Flat Roofs					
	New Roofing & Insulation	280	sq	100.00	28,000	
	Misc. Flashing				7,500	
	New Gutters & Leaders				8,700	
	l. Caulking				5,000	
	m. Replace Exist. Wood Lintels w/steel				14,000	
	n. Skylights				10,000	
	o. Misc.				31,000	
						526,115

Note: Where no unit is given, estimate is lump sum.

Item	Description	Quantity	Unit	Unit Price	Amount	Total
3.	New Interior Structural Work					
	a. Slab on Grade compl.	4,500	sf	1.50	6,750	
	b. Susp. Slabs c/w/Steel	23,000	sf	10.00	230,000	
	c. Add. Steel Beams & Columns	25	tons	1,200.00	30,000	
	d. Trench Walls Compl.				15,000	
	e. Waterproofing Trench				6,000	
	f. Misc.				35,000	
						322,750
4.	Add. to Floor Load Capacity Floors 4 & 5					
	a. Foundation					
	Demolition of Exist. Floor				700	
	Excavation	280	cy	15.00	4,200	
	Dewatering				10,000	
	Concrete Footings	70	cy	54.00	3,780	
	Footing Forms	2,900	sf	1.50	4,350	
	Reinf.	14,000	lbs.	.40	5,600	
	Replace Floor				2,000	
	Misc.				500	
	b. Framing for Floors 4 & 5					
	Steel Beams & Columns	175	tons	1,000.00	175,000	
	Add. Wood Joists @4th Flr.	32,000	bf	.50	16,000	
	c. Fireproofing Beams & Columns				24,000	
	d. Cut. & Level. 4th Floor				10,000	
	e. Flexicore @5th Floor	14,000	sf	4.00	56,000	
	f. Concrete Topping @5th Floor	14,000	sf	.70	9,800	
	g. Misc.				25,000	
						346,930
5	Carpentry & Floor Rehab.					
	a. Plywood Subfloor	40,000	sf	.45	18,000	
	b. ½" Plywood Floor	135,000	sf	.50	67,500	
	c. Replace Existing Joists	75,000	bf	.50	37,500	
	d. Demolition & Rem. of Exist. Wd.				20,000	
	e. Re-leveling				30,000	
	f. Misc.				52,000	
						225,000
6	Vertical Transportation					
	a. Escalator		1 flt.	33,000.00	33,000	
	b. Elevators				143,000	
	c. Stairs				45,000	
						221,000
7.	Interiors					
	a. New Masonry Partitions	27,000	sf	6.00	162,000	
	b. Clean & Repoint Exist. Part.	166,740	sf	1.00	166,740	
	c. Doors				60,000	
	d. Finishes					
	Floors & Base	153,000	sf	.90	137,700	
	Ceilings	153,000	sf	1.25	191,250	
	e. Walls				28,000	
	f. Demolition & Removals				68,000	
	g. Cutting & Patching					
	Mechanical Trades				54,150	
	General				22,000	
	h. New Interior Storefront	3,500	sf	12.00	42,000	
	i. Misc. Metals				45,000	
	j. Arcade Trench Compl.				5,000	
	k. Misc.				20,000	
						1,001,840
8.	Specialties				160,000	
						160,000
9.	Underpinning				27,000	
						27,000

SUMMARY—GENERAL CONSTRUCTION—SOLUTION A NEW BUILDING

The construction cost of the new building is separated from the cost to renovate the existing buildings. The new construction required to create the shopping arcade and hallways within the existing court yards are included in the costs of the existing building's renovation.

1.	Demolition & Removals	9,000		
2.	Pile Foundations	63,000		
3.	Foundation Work	136,585		
4.	Superstructure	165,300		
5.	Exterior Surfaces	169,864		
6.	Specialties	16,000		
7.	Interiors	162,590		
	Direct Cost		722,339	
	25% G.C. Mark-Ups (approx.)		180,561	
	Total General Construction			$902,900

BREAKDOWN–GENERAL CONSTRUCTION–SOLUTION A
NEW BUILDING

Item	Description	Quantity	Unit	Unit Price	Amount	Total
1.	Demolition & Removals				9,000	
						9,000
2.	Pile Foundations				63,000	
						63,000
3.	Foundation Work					
	a. Pressure Slab in Basement					
	Concrete	260	cy	40.00	10,400	
	Forms	600	sf	1.10	660	
	Reinf.	40,000	lbs	.30	12,000	
	Admixtures				1,100	
	Misc.				2,000	
	b. Foundation Walls					
	Concrete	175	cy	43.00	7,525	
	Forms	8,800	sf	1.50	13,200	
	Reinf.	27,000	lbs	.30	8,100	
	Admixtures				600	
	Misc.				500	
	c. Excavation				4,000	
	d. Dewatering				30,000	
	e. Sheet Piling				31,500	
	f. Misc.				15,000	
						136,585
4.	Concrete Superstructure	16,530	sf	10.00	165,300	
						165,300
5.	Exterior Surfaces					
	a. Brick Walls	5,220	sf	7.50	39,150	
	b. Curtain Walls	4,020	sf	20.00	80,400	
	c. Doors & Entrances				15,000	
	d. Roofing					
	Special Roofing	4,755	sf	2.50	11,888	
	Insulation	4,755	sf	.30	1,426	
	Misc. Flashing				1,000	
	Parapets & Railings				7,500	
	e. Misc.				13,500	
						169,864
6	Specialties				16,000	
						16,000
7.	Interiors					
	a. New Stairs				15,000	
	b. Finishes					
	Floors & Base	16,530	sf	1.50	24,795	
	Ceilings	16,530	sf	1.50	24,795	
	Granite Walls	5,000	sf	10.00	50,000	
	c. Doors				2,000	
	d. Partitions				36,000	
	e. Misc.				10,000	
						162,590

SUMMARY–MECHANICAL AND ELECTRICAL–SOLUTION A

The mechanical and electrical estimates are developed based on the requirements and anticipated needs of individual use within both the new and existing buildings.

		P & D	HVAC	Elec.
1.	Museum & Common Areas	228,000	845,000	633,000
2.	Stores	20,000	85,000	37,000
3.	Offices	24,000	101,000	44,000
4.	Restaurants	18,000	40,000	22,000
	Totals	$290,000	$1,071,000	$736,000

BREAKDOWN–PLUMBING AND DRAINAGE–SOLUTION A

1. Museum & Common Areas

Equipment	36,000	
Fixtures, Drains	40,000	
Piping	65,000	
Insulation	12,000	
Services	20,000	
Cutting	30,000	
Testing & Misc.	7,000	
General Conditions	18,000	
Total		228,000

2. **Stores**

Piping	10,000	
Insulation	2,000	
Cutting	5,000	
General Conditions & Misc.	3,000	
Total		20,000

3. **Offices**

Piping	12,000	
Insulation	2,000	
Cutting	6,000	
General Conditions & Misc.	4,000	
Total		24,000

4. **Restaurants**

Piping	9,000	
Insulation	2,000	
Cutting	4,000	
General Conditions & Misc.	3,000	
Total		18,000

BREAKDOWN–HVAC–SOLUTION A

1. **Museum & Common Areas**

Refrig. Equip., Tower, Pumps	180,000	
Steam Service Equipment	21,000	
Air Handling Equipment	45,000	
Piping	73,000	
Radiation	7,000	
Sheet Metal Work	215,000	
Controls	30,000	
Electrical Equipment	5,000	
Insulation	23,000	
Registers, Grilles	6,000	
Sprinkler System	80,000	
Cutting	30,000	
Testing, Balance, Misc.	12,000	
Temporary Heating	40,000	
General Conditions	78,000	
Total		845,000

2. **Stores**

Piping	25,000	
Radiation	15,000	
Sheet Metal Work	4,000	
Insulation	1,000	
Sprinklers	30,000	
Cutting & Misc.	5,000	
General Conditions	5,000	
Total		85,000

3. **Offices**

Piping	25,000	
Radiation	17,000	
Sheet Metal Work	3,000	
Insulation	1,000	
Sprinklers	50,000	
Cutting & Misc.	5,000	
Total		101,000

4. **Restaurants**

Piping	12,000	
Sheet Metal Work	8,000	
Insulation	2,000	
Sprinklers	10,000	
Cutting & Misc.	5,000	
General Conditions	3,000	
Total		40,000

BREAKDOWN–ELECTRICAL–SOLUTION A

1. **Museum & Common Areas**

Service & Panels	65,000	
Branch Ckts., Feeders, Devices	108,000	
Lighting Fixtures	165,000	
Emergency Power System	40,000	
Security & Fire Alarm	40,000	
Motor Work	35,000	
Temporary Lt. & Power	110,000	
Cutting	35,000	
General Conditions	35,000	
Total		633,000

2. **Stores**

Service & Panels	11,500	
Feeders	23,000	
General Conditions & Misc.	2,500	
Total		37,000

3. **Offices**

Service & Panels	8,000	
Feeders	32,000	
General Conditions & Misc.	4,000	
Total		44,000

4. **Restaurants**

Service & Panels	6,000	
Feeders	15,000	
General Conditions & Misc.	1,000	
Total		22,000

B. TOTAL COST ESTIMATE–SOLUTION B

The following schematic estimate for Solution B is based on data developed for Solution A previously presented with prices as of April 1973.

Scheme B is the rectangular building with a fully enclosed roof terrace restaurant and basement mechanical room.

GENERAL CONSTRUCTION	$4,525,000	
PLUMBING & DRAINAGE	280,000	
HVAC	1,110,000	
ELECTRICAL	740,000	
TOTAL BUILDING COST		$6,655,000

Price includes Design Contingency. However, an Additional Contingency of 10% for Field and Construction is recommended due to unforeseeable existing foundation conditions.

The total project cost must include some Allowance for Site Work. See the following cost estimates for the Development of Burling Slip.

C. COST ESTIMATE FOR SITE DEVELOPMENT

The cost of site development can merely include new sidewalks and curbs around the existing buildings without any development of Burling Slip for an approximate cost of		$ 37,000

Burling Slip can be fully developed including:

Plaza	511,000	
Bridge to Tele. Co. Bldg.	20,000	
Raised Stepped Terraces	90,000	
Stair from Terraces to Second Floor Shopping Arcade	12,000	
Miscellaneous Street Furniture	50,000	
Total Burling Slip Development Cost		$ 683,000
If the mechanical equipment room is located in the Plaza development, cost is approximately		$ 730,200

D. ANALYSIS OF CONSTRUCTION COST PROPORTIONED BETWEEN MUSEUM AND COMMERCIAL RENTAL SPACE

The following analysis proportions the total construction cost between Museum and Commercial Rental Space by attempting to relate specific items attributable to each use category.

The total net usable area for the Museum is 39,635 sq. ft. and there is a total 85,720 sq. ft. net usable Commercial Rental area.

The proportioned Total Building Cost for each use based on our recently submitted revised estimate dated 6/28/73 is:

Museum	3,493,810
Commercial	3,078,890
	6,572,700

Based on this analysis, the Museum, while occupying 31.6% of the total net usable area of 125,355 sq. ft., generates 53.2% of the Total Building Cost of $6,572,700.

This variation in percentage of net usable area vs. percentage of total building cost is largely due to the relative completion of Museum areas and the unfinished nature of Commercial Rental areas. Commercial Rental areas will need to be completed with "tenant changes" including air-conditioning, electrical, finishing, etc. work as required by each occupant. Museum space is delivered essentially "ready to use" except, of course, without furnishings, exhibits and minor partition, etc., work.

Our analysis is based on solution A which is the project as originally conceived: namely, the curved facade stepped roof terrace building with the mechanical room in the basement underneath the new building. Solution A does not include any Plaza development in Burling Slip.

All the figures in the following proportioned construction cost analysis are deduced from the detailed, item-by-item breakdown given in Section A (breakdown for solution A). We have considered, therefore, the total building cost excluding all site work in order to develop a proportional relationship which can be applied generally to both solutions.

BREAKDOWN–CONSTRUCTION COST OF MUSEUM SPACE

(The Museum area is approximately 31% of the total net usable area)

1. Gen. Const. Existing Buildings

New interior structural work (This is essentially the work in the existing courtyards for new Corridor and Building Services. 31% of the Total Cost of structural work)	101,500
Additional 4th & 5th Ffoor load capacity	346,930

Exterior Surfaces:
(The Museum spaces are enclosed by approx. 1/5 of the exist. building facade)

Dem. & Removal	(1/5 of tot. cost is Museum)	26,000	
New windows	"	12,500	
New brick wk.	"	8,400	
Repoint brick	"	1,200	
Steam clean brick	"	1,200	
Scaffolding	"	1,000	
Entrances & doors	"	9,450	
Sloped Roof	"	84,425	
Caulking	"	1,000	
Replace exist. wd. lintels	"	2,800	
Skylights	"	10,000	
Misc.	"	6,200	
			164,175

Interiors:

New Masonry part's.	(31% of total cost is Museum)	50,000	
Clean & point exist. part's.	"	51,740	
Doors	"	18,500	
Finishes			
Floors & Base	"	42,700	
Ceilings	"	59,250	
Walls	"	8,775	
Dem. & Removals	"	21,000	
Mech. Trades	"	16,750	
General	"	6,800	
Misc. Metal	"	14,000	
Arcade Trench	"	1,550	
Misc.	"	6,200	
			297,265

Vertical Transportation:

Elevators		71,500	
Stairs	(1/5 of tot. cost is Museum)	14,000	
			85,500
Specialties	(31% of total cost is Museum)		50,000
Underpinning	(31% ol total cost is Museum)		8,400

2. Gen. Const. New Bldg.

Pile Foundation		63,000	
Foundation Work	(31% of tot. cost is Museum)	42,585	
Superstructure		165,300	
Exterior Surfaces		169,864	
Interiors		162,590	
Specialties		16,000	
Dem. & Removals	(31% of tot. cost is Museum)	2,800	
			622,139
			1,675,909
25% G.C. markup (approx.)			418,381
			2,094,290

Museum and Common Area Mechanical and Electrical costs are proportioned according to relative floor areas. 39,635 + 14,270 = 53,905. The Museum areas are approx. 74% of the combined total Museum and Common area. Costs for these areas are proportioned between the Museum and the Commercial Retail areas with 31% borne by the Museum and 69% by the Commercial Rental.

3. Plumbing & Drainage

(Museum P & D) 228,000 x .74 =	168,720	
(Museum portion of Common Area P & D) 228,000 x .26 x .31 =	18,400	
		187,120

4. HVAC

(Museum HVAC) 845,000 x .74 =	625,000	
(Museum portion of Common Area HVAC) 845,000 x .26 x .31 =	68,200	
		693,200

5. **Electrical**

(Museum Elec.)		
633,000 x .74 =	468,000	
(Museum portion of Common Area Elec.)		
633,000 x .26 x .31	51,200	
		519,200
Total Building Cost Proportioned For Museum		$3,493,810

BREAKDOWN–CONSTRUCTION COST OF COMMERCIAL RENTAL SPACE

(The Commercial Rental area is approximately 69% of the total net usable area)

1. Gen. Const. Existing Buildings

Foundation Work, 167-171 John Street			27,586
New interior structural work (This is essentially the work in the existing courtyards for new Corridors and Building Services. 69% of the Total Cost is Commercial Rental)			221,250
Carpentry and Floor Rehab.			225,000
Exterior Surfaces:			
Dem. & Removal	(4/5 of tot. cost is Com. Rent)	101,000	
New windows	"	50,100	
New brick wk.	"	33,600	
Repoint brick	"	4,920	
Steam clean brick	"	4,920	
Rehab. stonework		24,500	
Scaffolding	(4/5 of tot. cost is Com. Rent)	4,400	
New store fronts		44,850	
Entrances & doors	"	9,450	
Flat Roofs		44,200	
Caulking	(4/5 of tot. cost is Com. Rent)	4,000	
Replace exist. wd. lintels	"	11,200	
Misc.	"	24,800	
			361,940
Vertical Transportation:			
Escalator		33,000	
Elevators		71,500	
Stairs	(4/5 of tot. cost is Com. Rent)	31,000	
			135,500

Interiors:			
New masonry part's.	(69% of tot. cost is Com. Rent)	112,000	
Clean & point exist. part's.	"	145,000	
Doors	"	41,500	
Finishes			
Floors & Base	"	95,000	
Ceilings	"	132,000	
Walls	"	19,225	
Dem. & Removals	"	47,000	
Cutting & Patching			
Mech. Trades	"	37,400	
General	"	15,200	
Interior Store fronts		42,000	
Misc. Metals	"	1,000	
Arcade Trench	"	3,450	
Misc.	"	13,800	
			704,575
Specialties	(69% of total cost is Com. Rent)		110,000
Underpinning	(69% of total cost is Com. Rent)		18,600

2. New Building

Foundation Work	(69% of tot. cost is Com. Rent)	94,000	
Dem. & Removals	"	6,200	
			100,200
			1,904,651
25% G.C. markup (approx.)			476,659
Total Gen. Const.			2,381,310

The Commercial Rental Mechanical and Electrical costs include a portion of the costs of "Common Areas".

3. Plumbing & Drainage

(Com. Rent. portion of Common Area P & D)		
228,000 x .26 x .69 =	40,880	
	20,000	
	24,000	
	18,000	
		102,880

4. **HVAC**		
845,000 x .26 x .69 =	151,800	
	85,000	
	101,000	
	40,000	
		377,800
5. **Electrical**		
633,000 x .26 x .69 =	113,400	
	37,000	
	44,000	
	22,500	
		216,900
Total Building Cost Proportioned For Commercial Rental		$3,078,890

PHOTOGRAPHS, MODELS, AND DRAWINGS

SITE AND EXISTING CONDITIONS

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(Showing new building Solution B and Burling Slip Study 4) 55

Mechanical and Electrical Survey of Site 56

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Front Street–John Street View 58

Fulton Street–Front Street View 59

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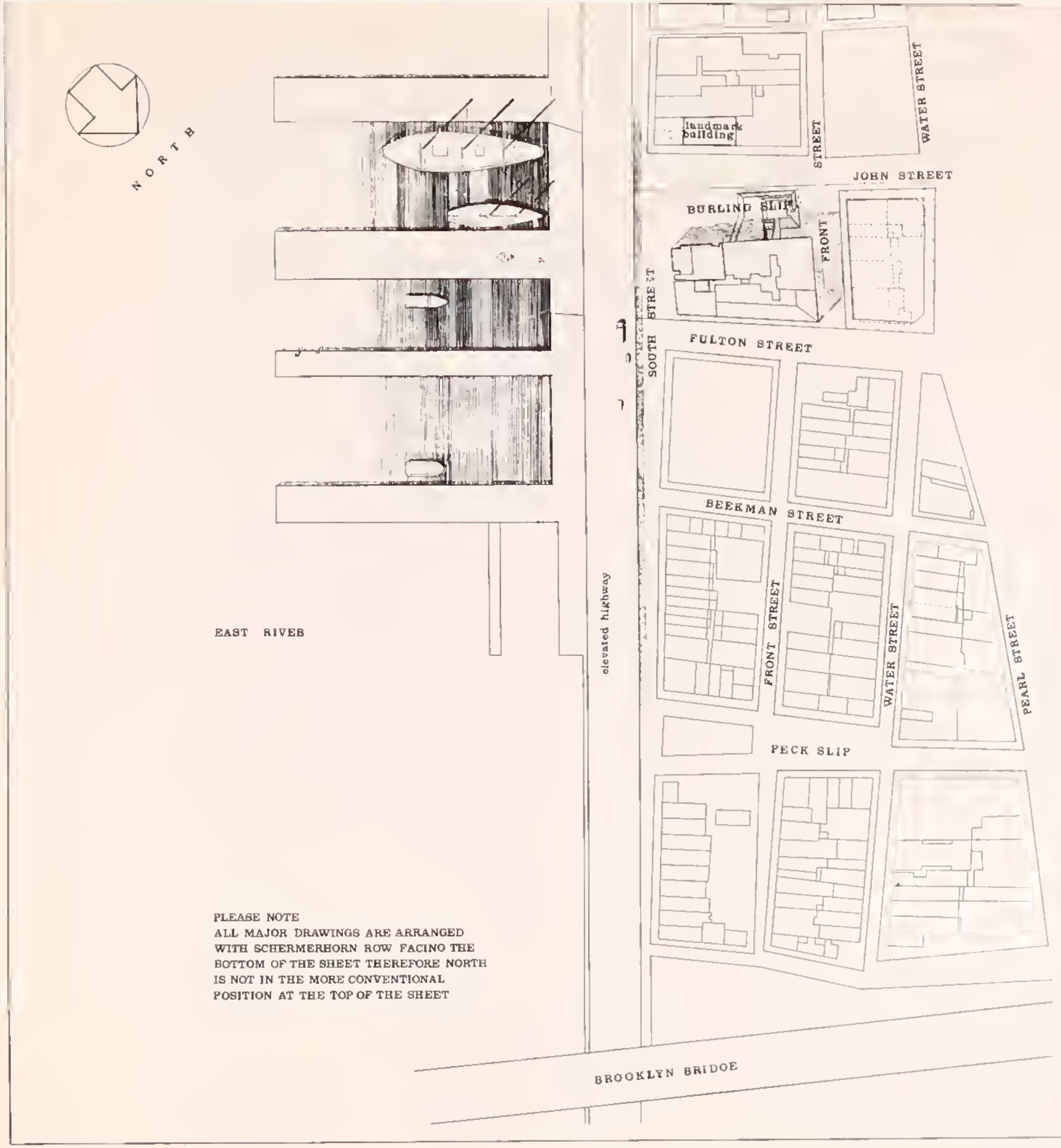
Existing Fulton Street and Front Street Elevations 61



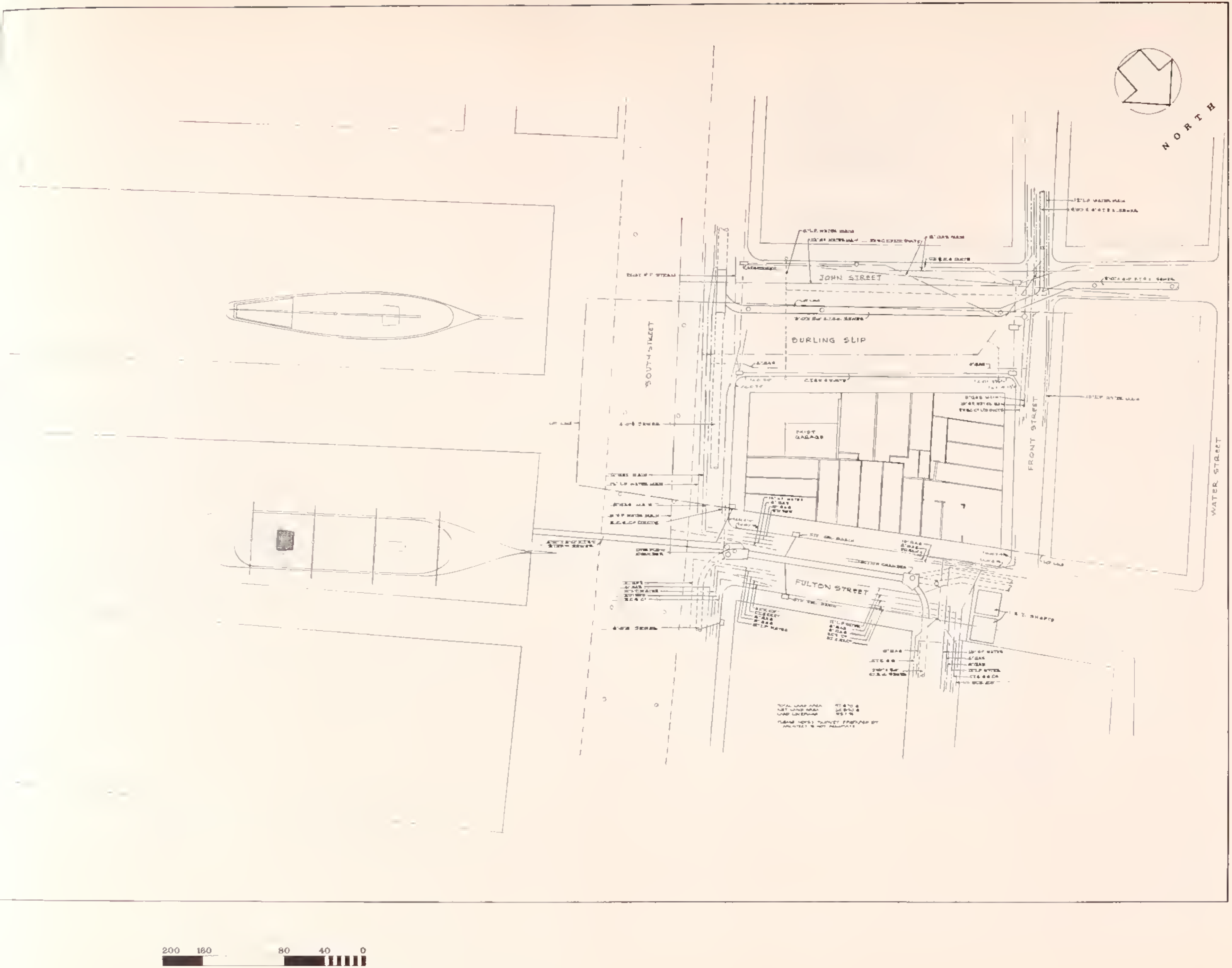
PLEASE NOTE
ALL MAJOR DRAWINGS ARE ARRANGED
WITH SCHERMERHORN ROW FACING THE
BOTTOM OF THE SHEET THEREFORE NORTH
IS NOT IN THE MORE CONVENTIONAL
POSITION AT THE TOP OF THE SHEET

LOCATION PLAN

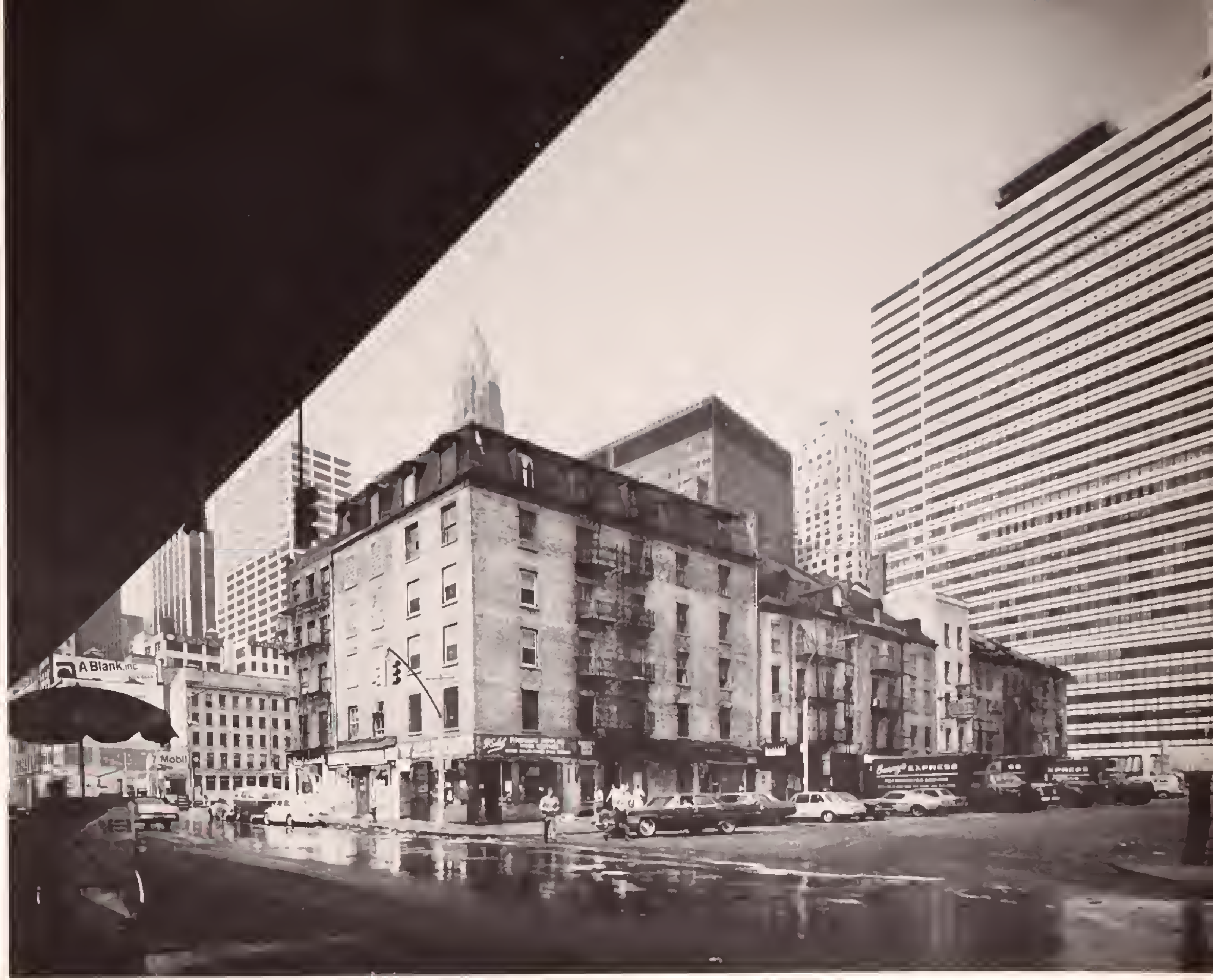
NOTE
NEW BLDG SOLUTION B
& BURLING SLIP SOLUTION 4
AS INDICATED

400 200 100 50 0

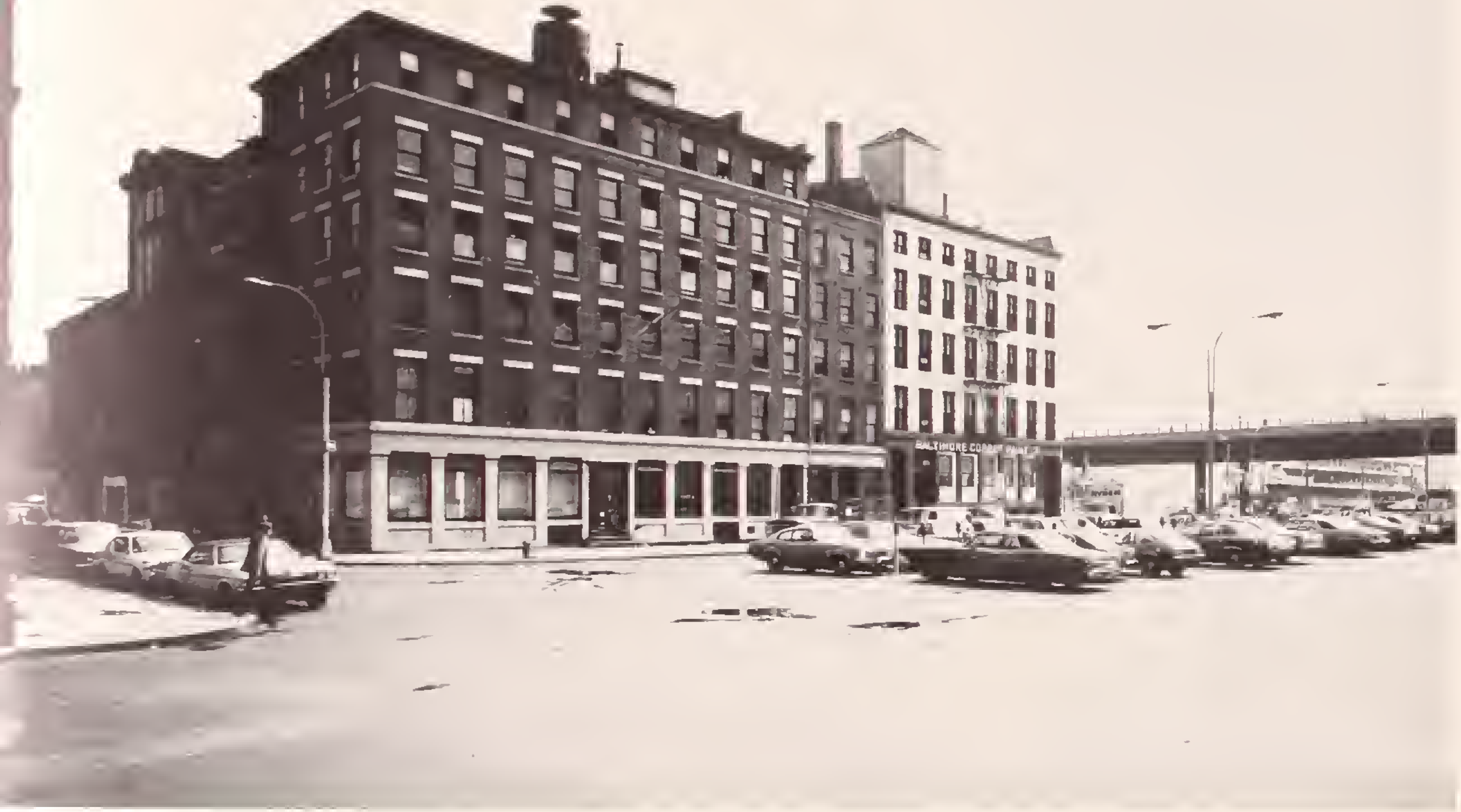
SITE LOCATION PLAN



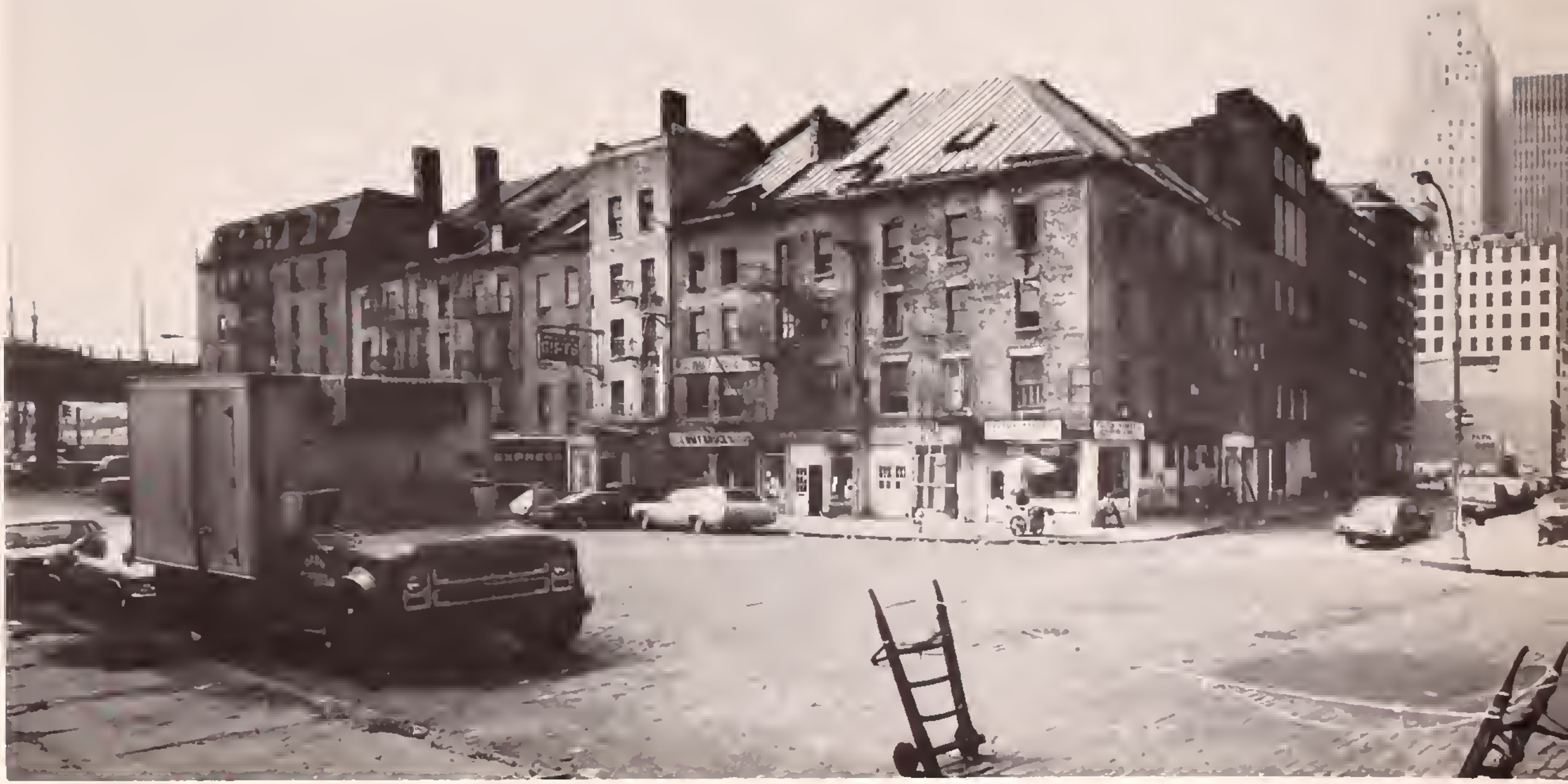
MECHANICAL AND ELECTRICAL SURVEY OF SITE



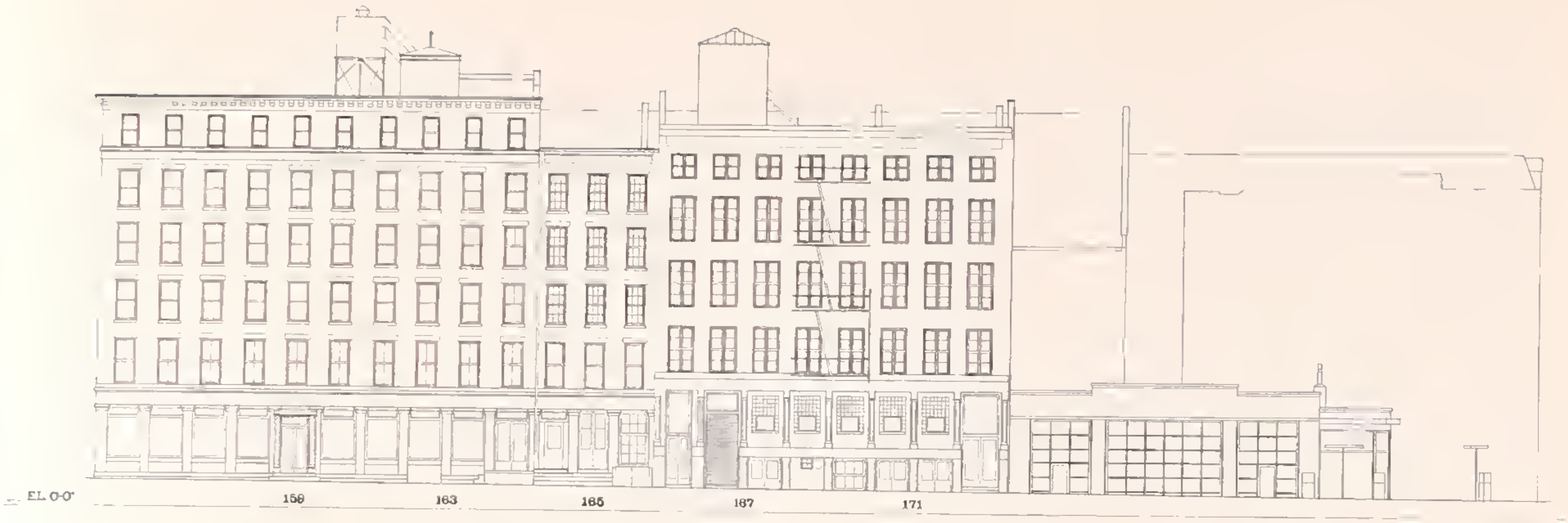
SOUTH STREET — FULTON STREET VIEW



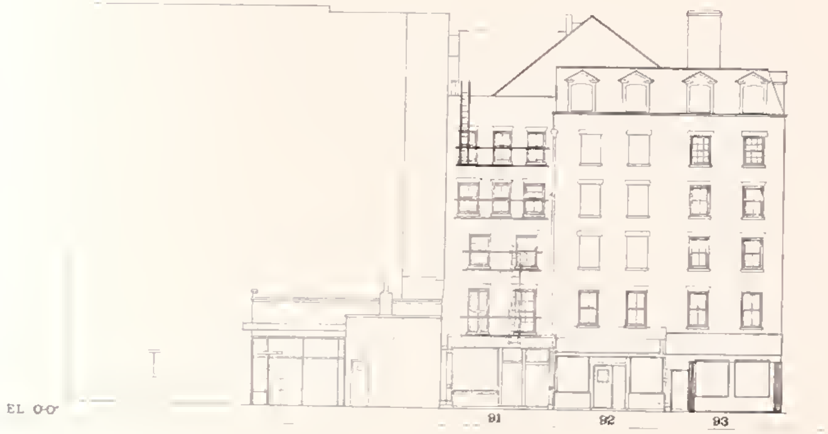
FRONT STREET — JOHN STREET VIEW



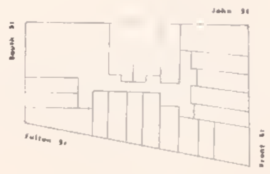
FULTON STREET — FRONT STREET VIEW



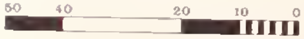
JOHN STREET west elevation



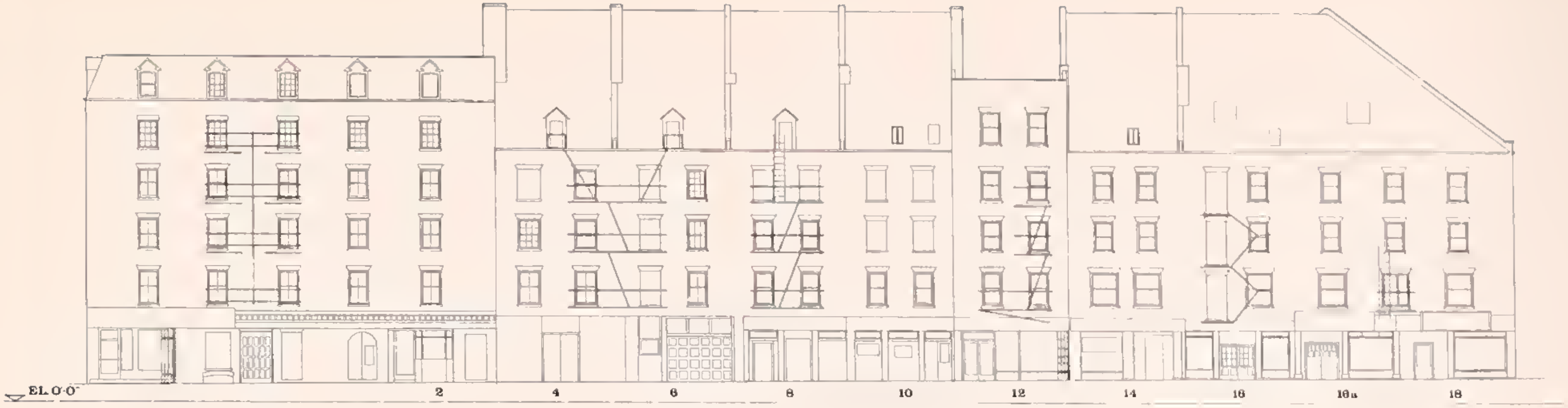
SOUTH STREET south elevation



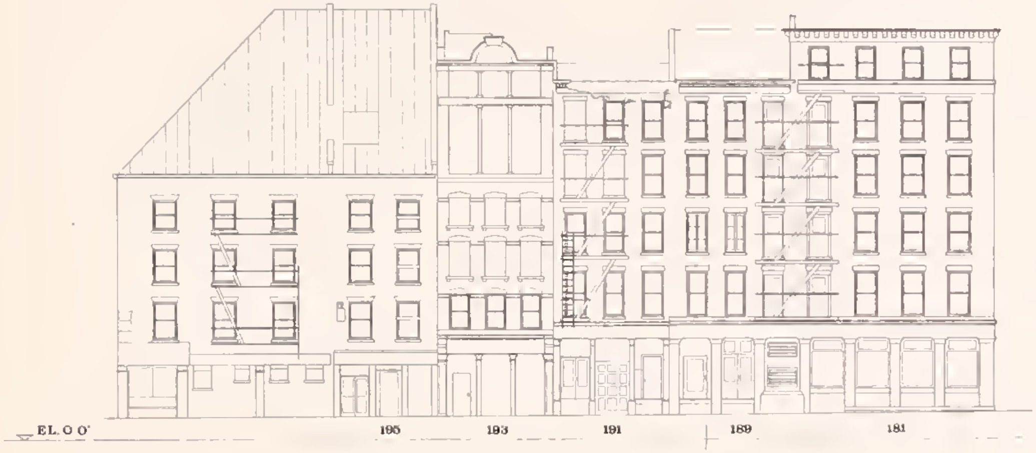
key plan



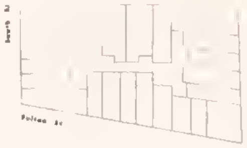
EXISTING ELEVATIONS



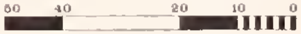
FULTON STEET · east elevation



FRONT STREET · north elevation



key plan



EXISTING ELEVATIONS

NEW BUILDING SOLUTION A

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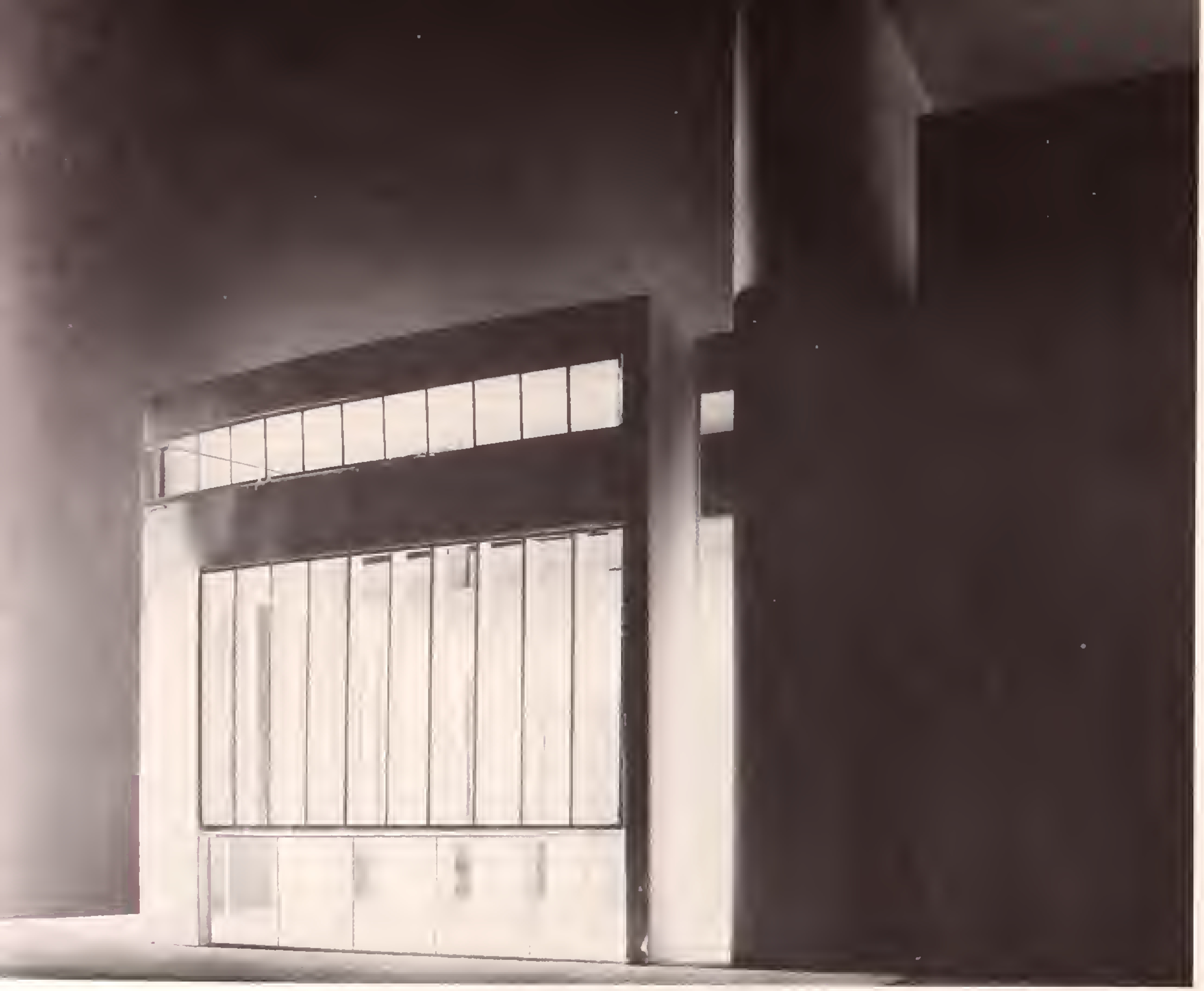
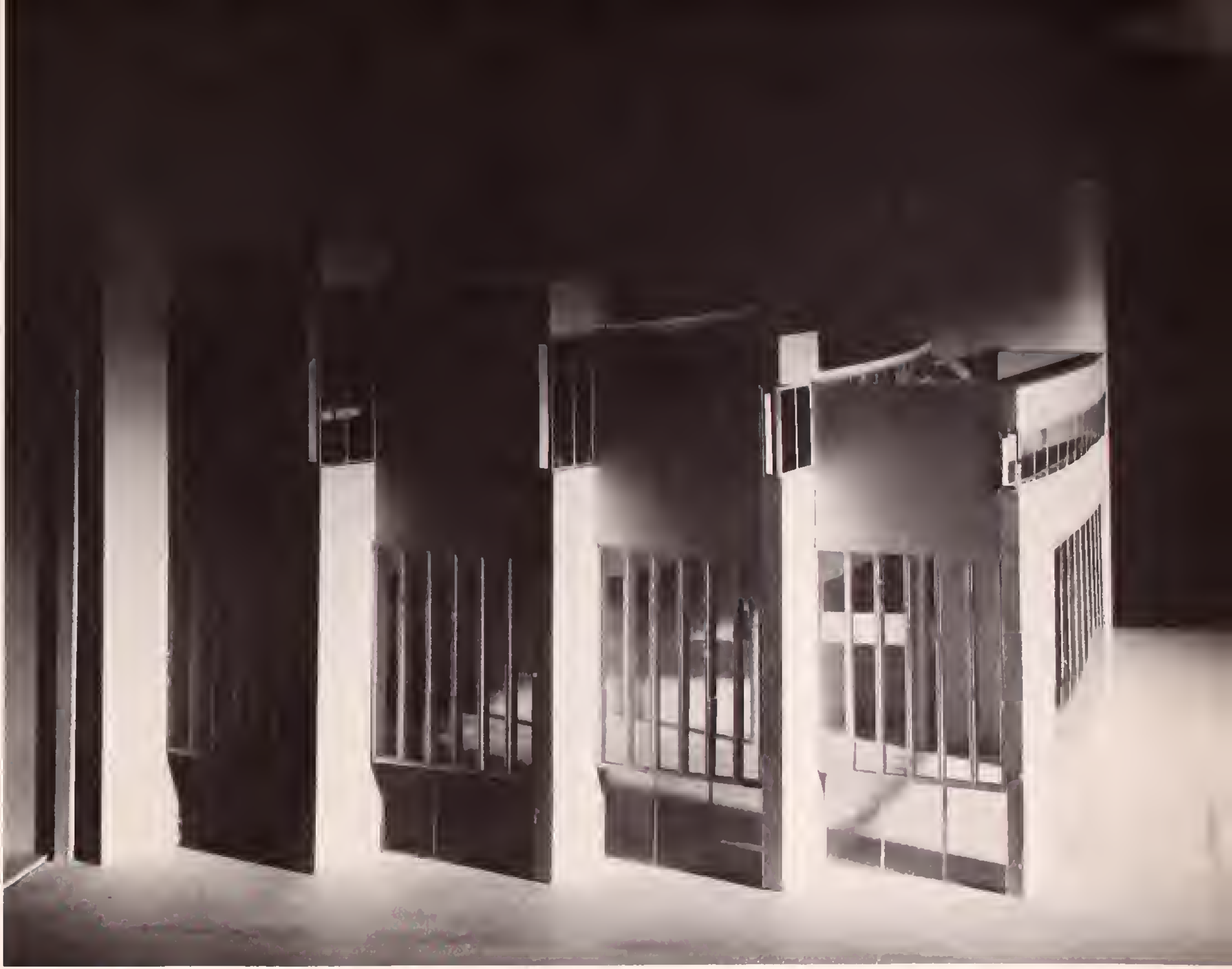
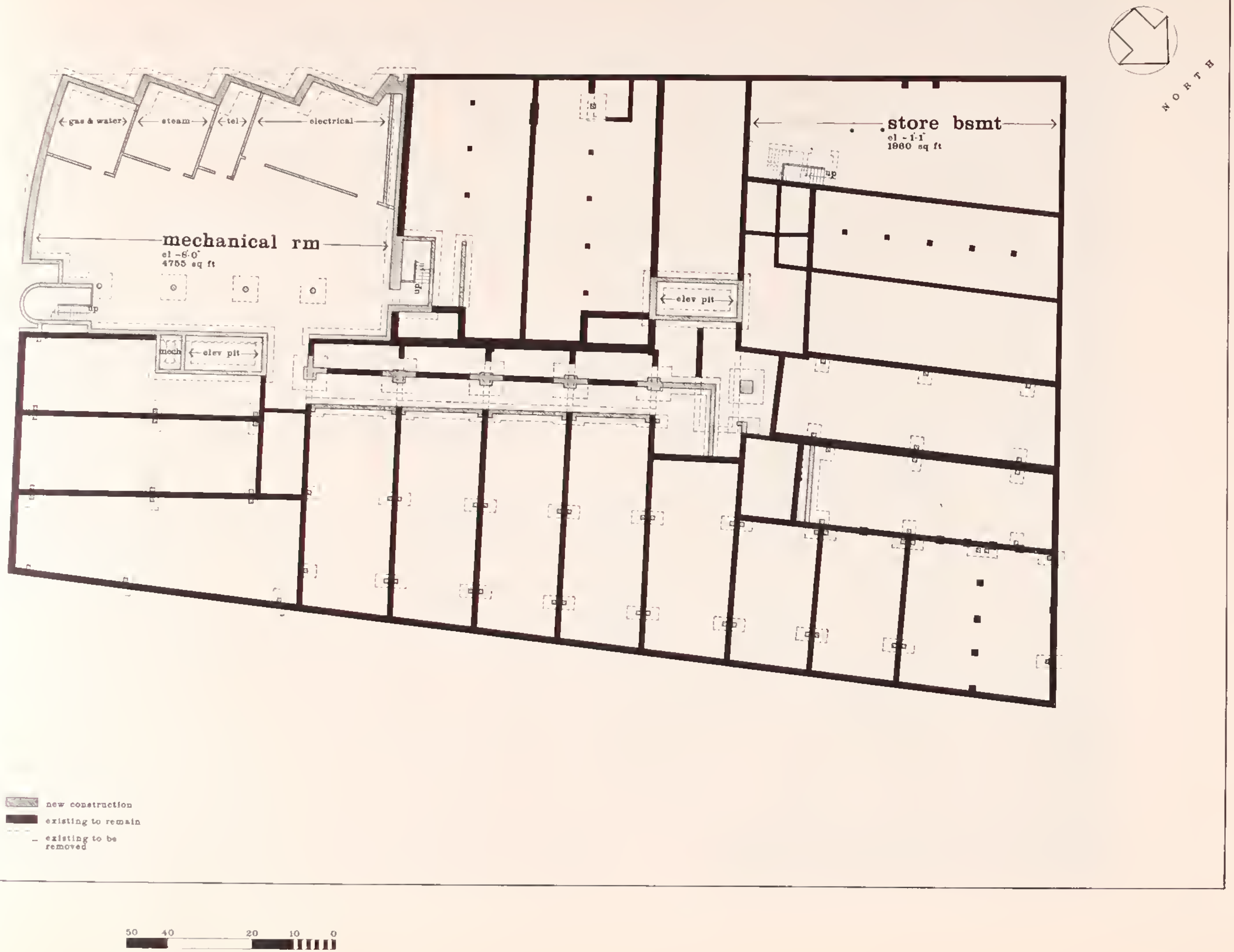
This solution of the new Museum building relates the top parapet line of the South Street elevation to the gutter line of the Schermerhorn Row Building on Fulton Street. By successive steps the roof rises toward the old building on John Street, creating the possibility of an open-air terrace space available for cafe or club use and for theatrical productions. The John Street facade of the new building is indented to permit and emphasize show window arrangements for special exhibits on the future plaza. In the interior of the building the visitors can flow easily upward toward the Museum spaces enclosed in the old attic of the Schermerhorn Row buildings. In this solution the mechanical equipment is indicated to be housed in the basement of the new building. With the Burling Slip Study 2, the mechanical equipment will remain in the basement of the new building; with the Burling Slip Study 3, space adequate to house the mechanical equipment above maximum tide level would be obtained under the raised platforms.



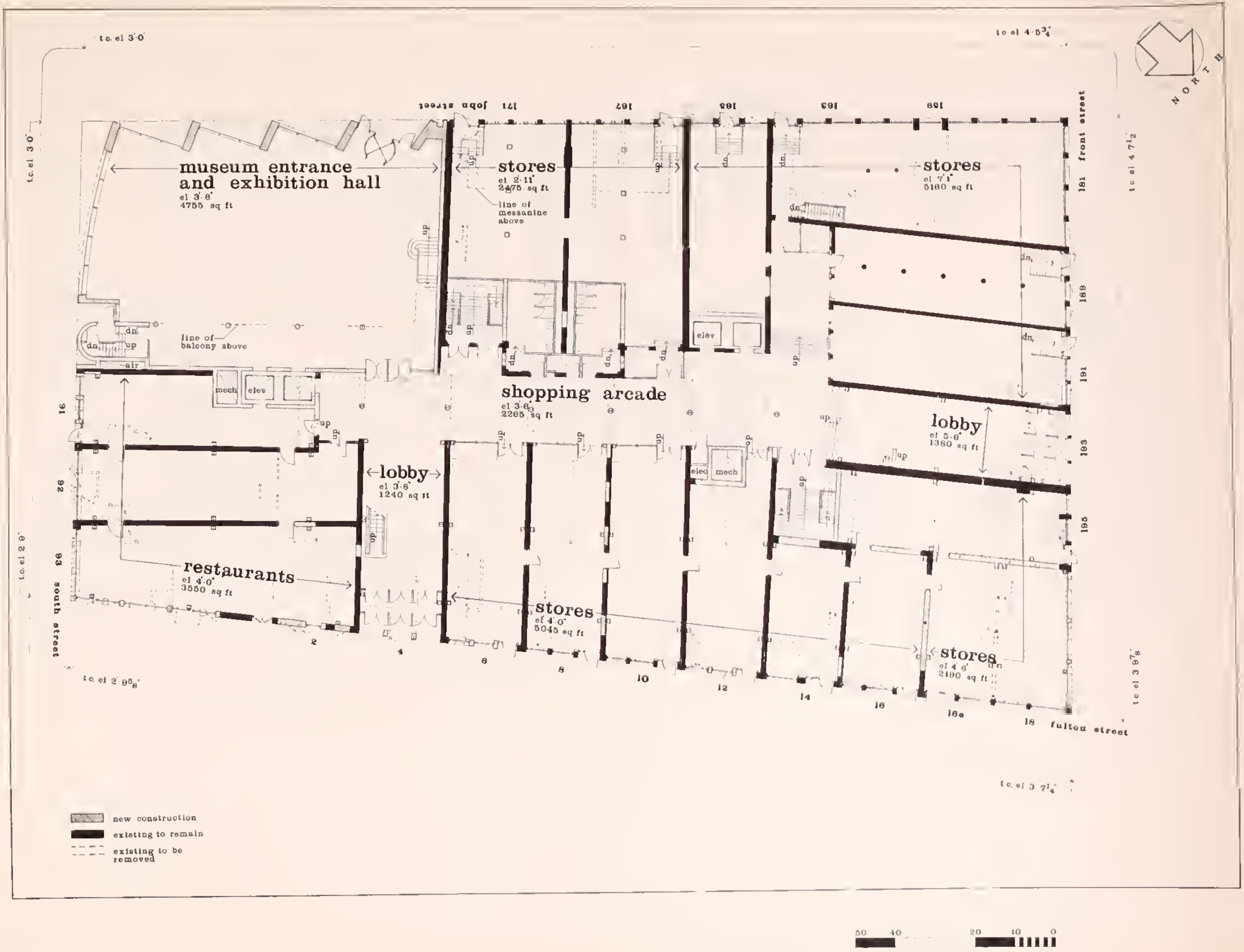
MODEL OF NEW BUILDING, SOLUTION A — SOUTH STREET VIEW



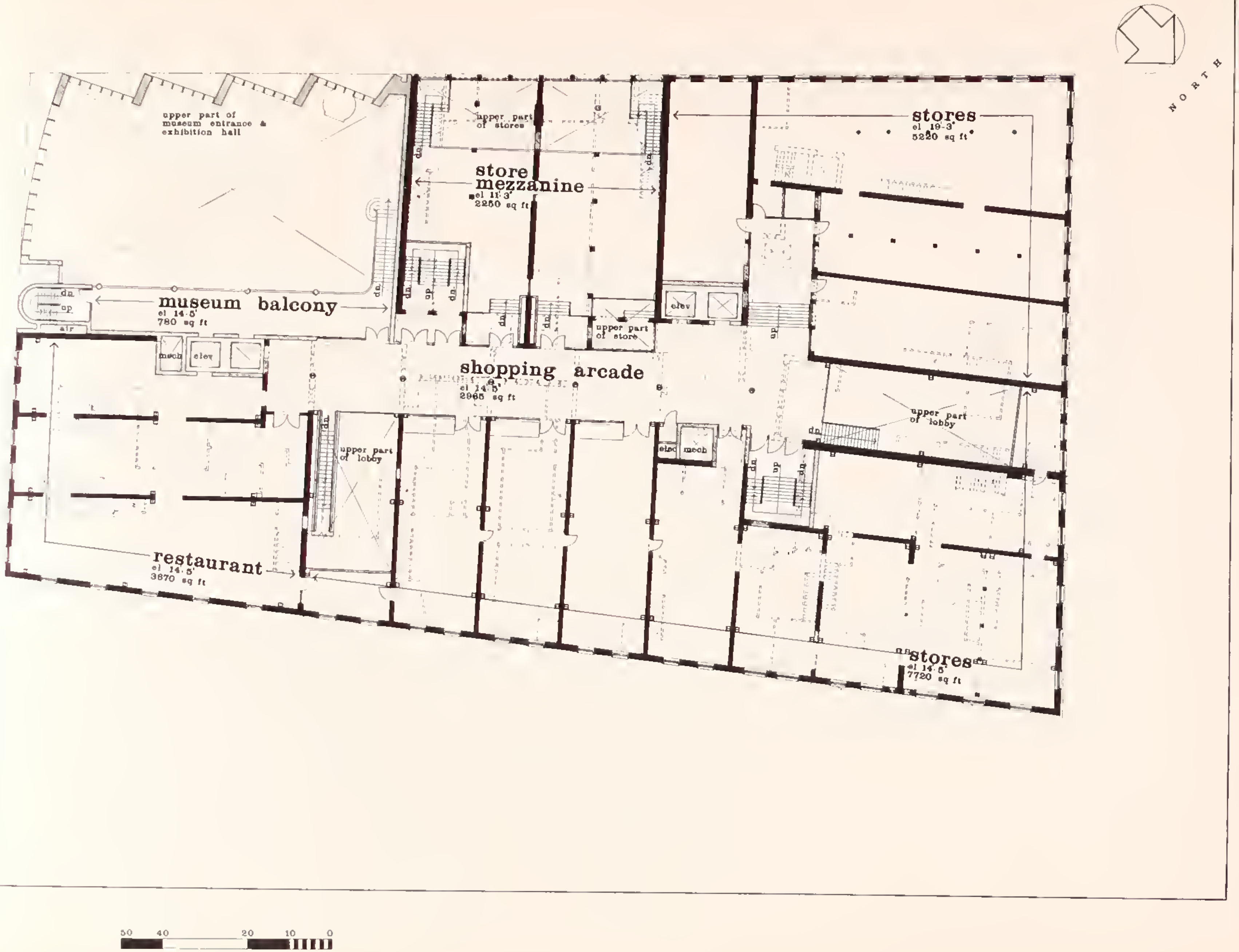
MODEL OF NEW BUILDING, SOLUTION A — JOHN STREET VIEW



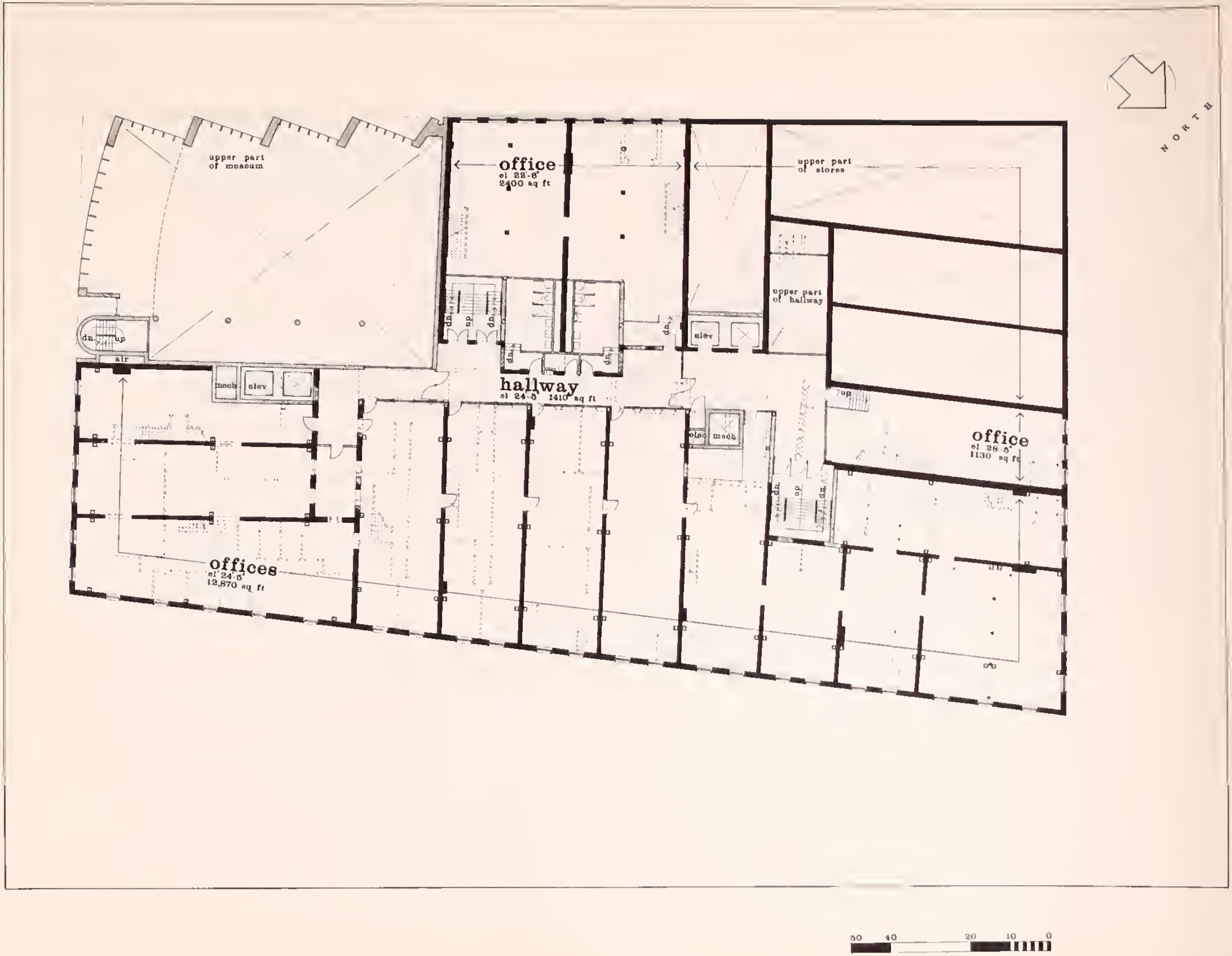
CELLAR LEVEL PLAN



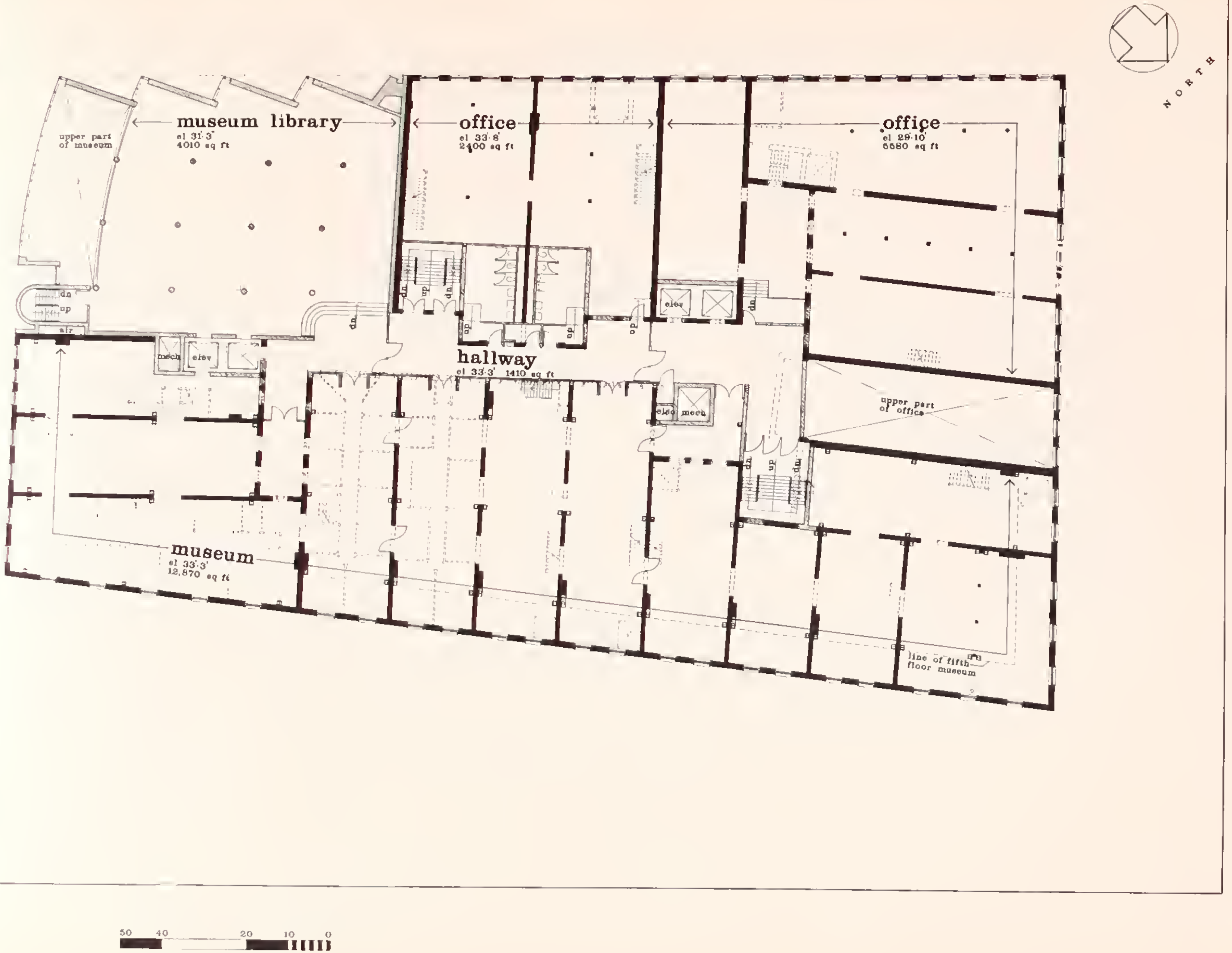
GROUND LEVEL PLAN



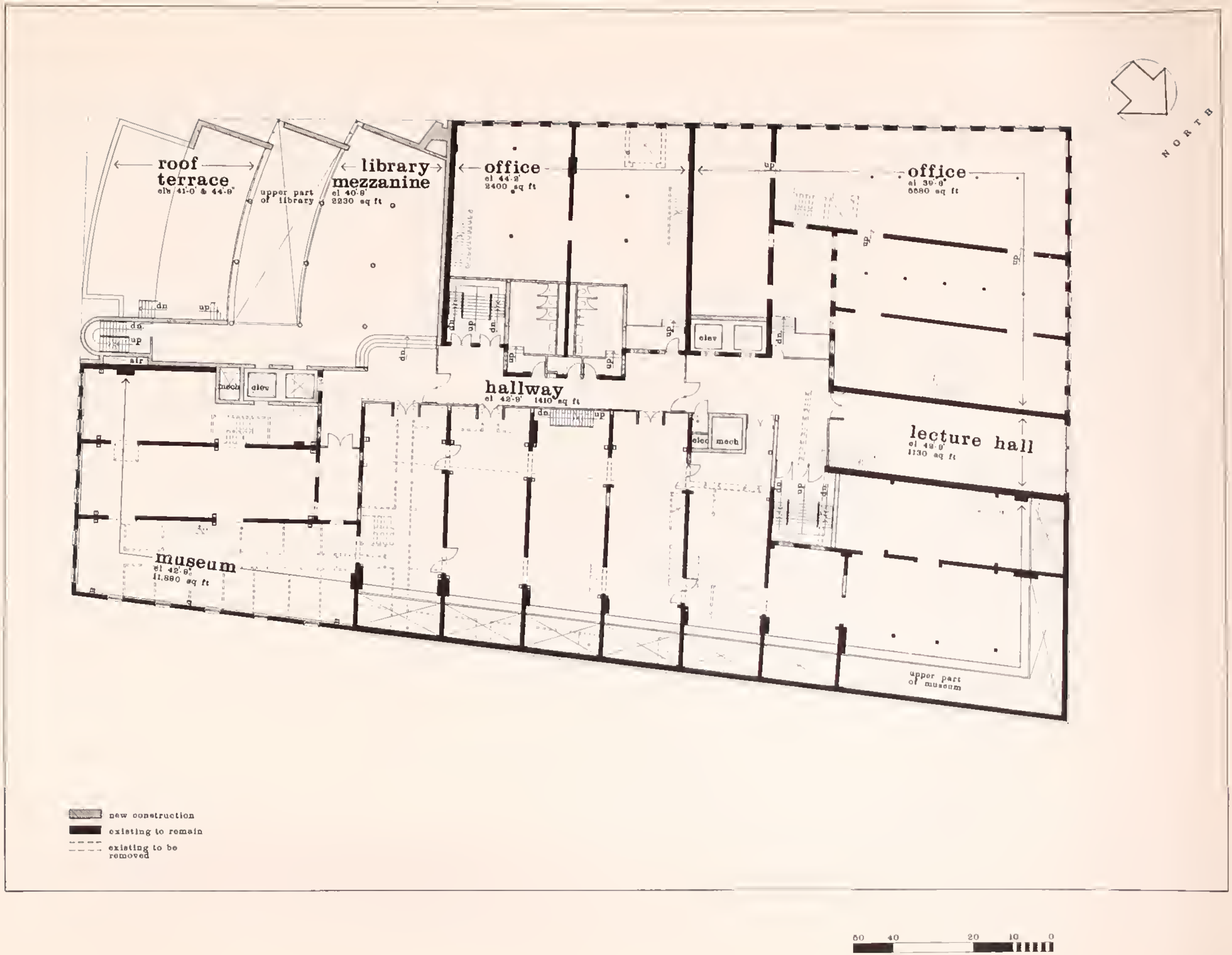
SECOND LEVEL PLAN



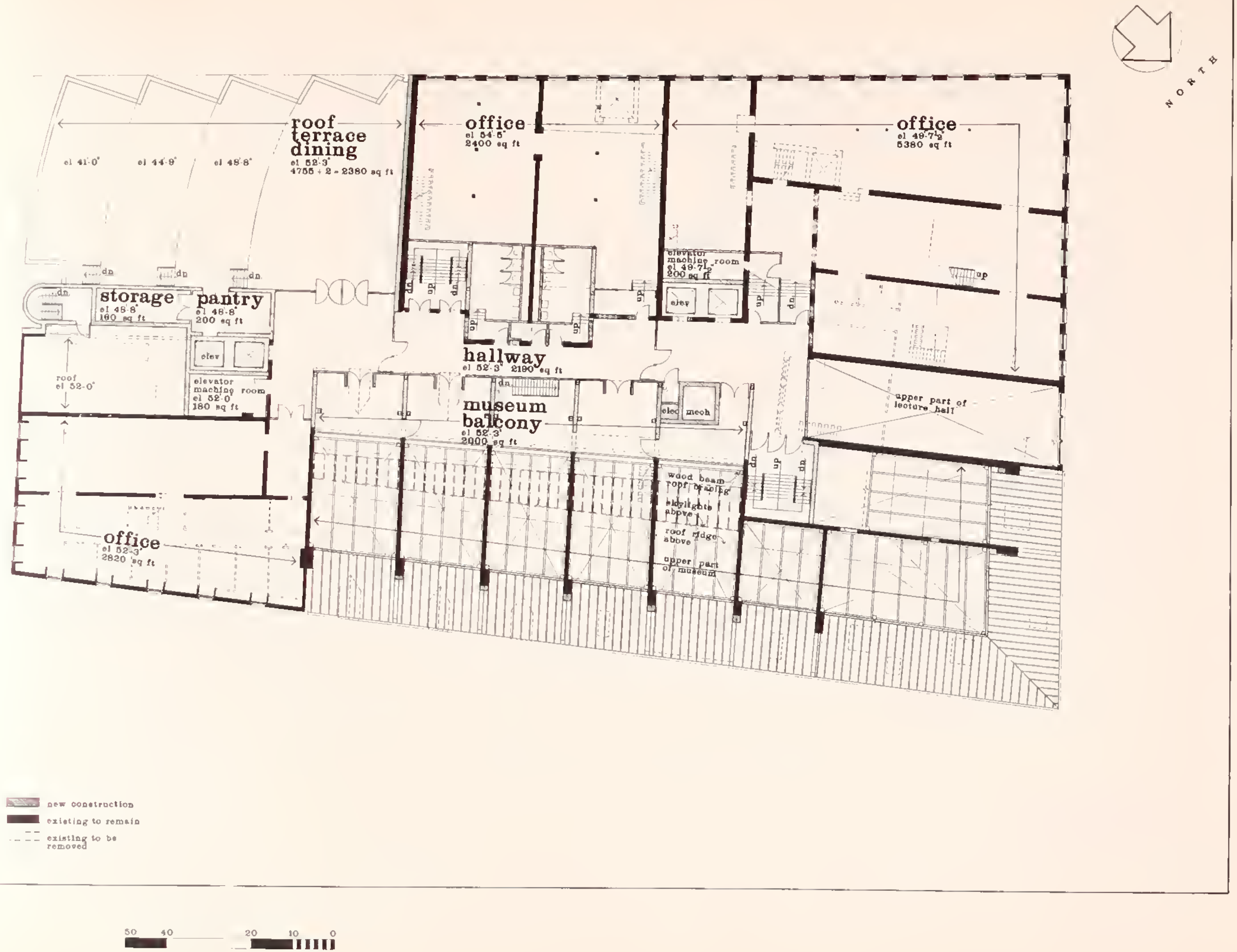
THIRD LEVEL PLAN



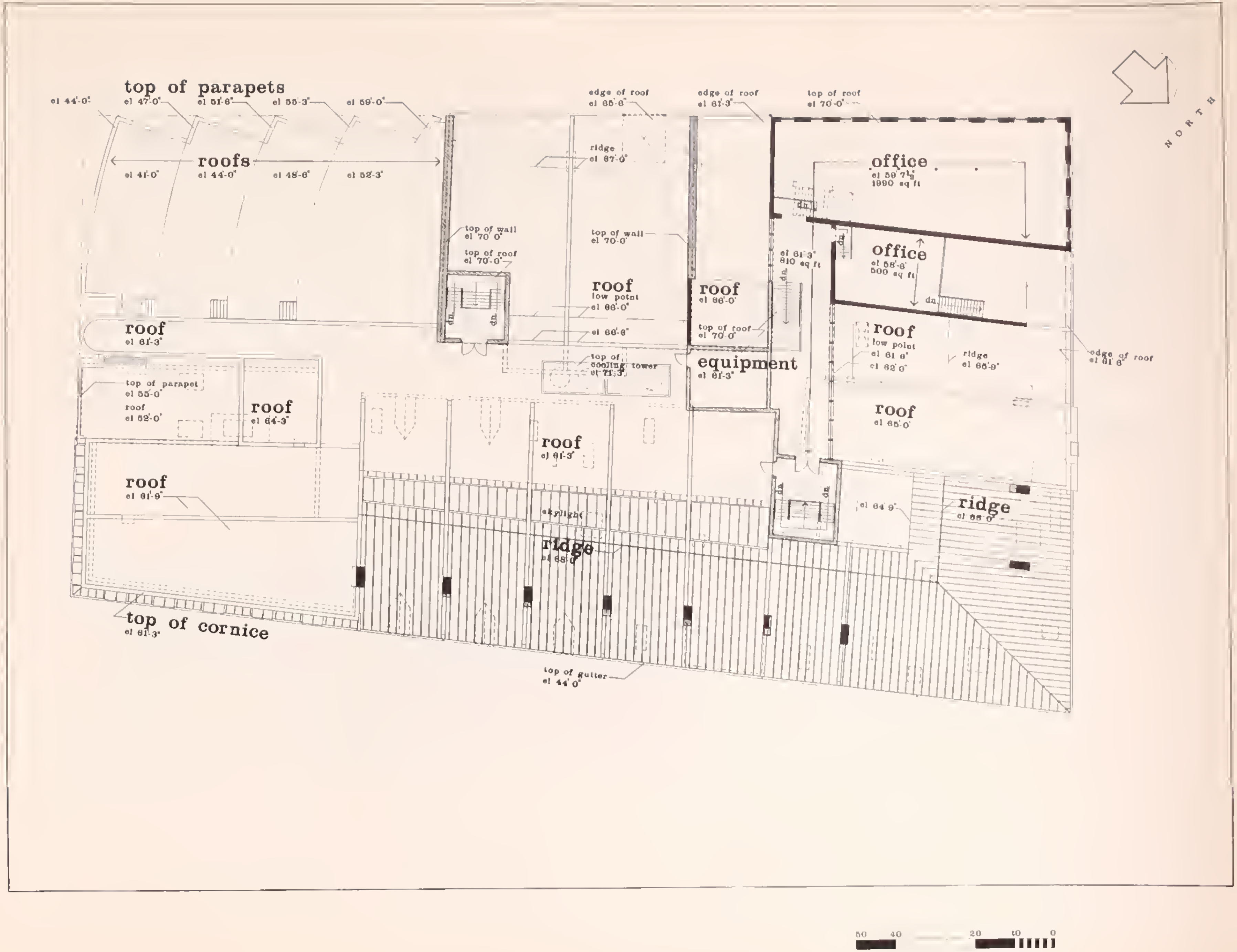
FOURTH LEVEL PLAN



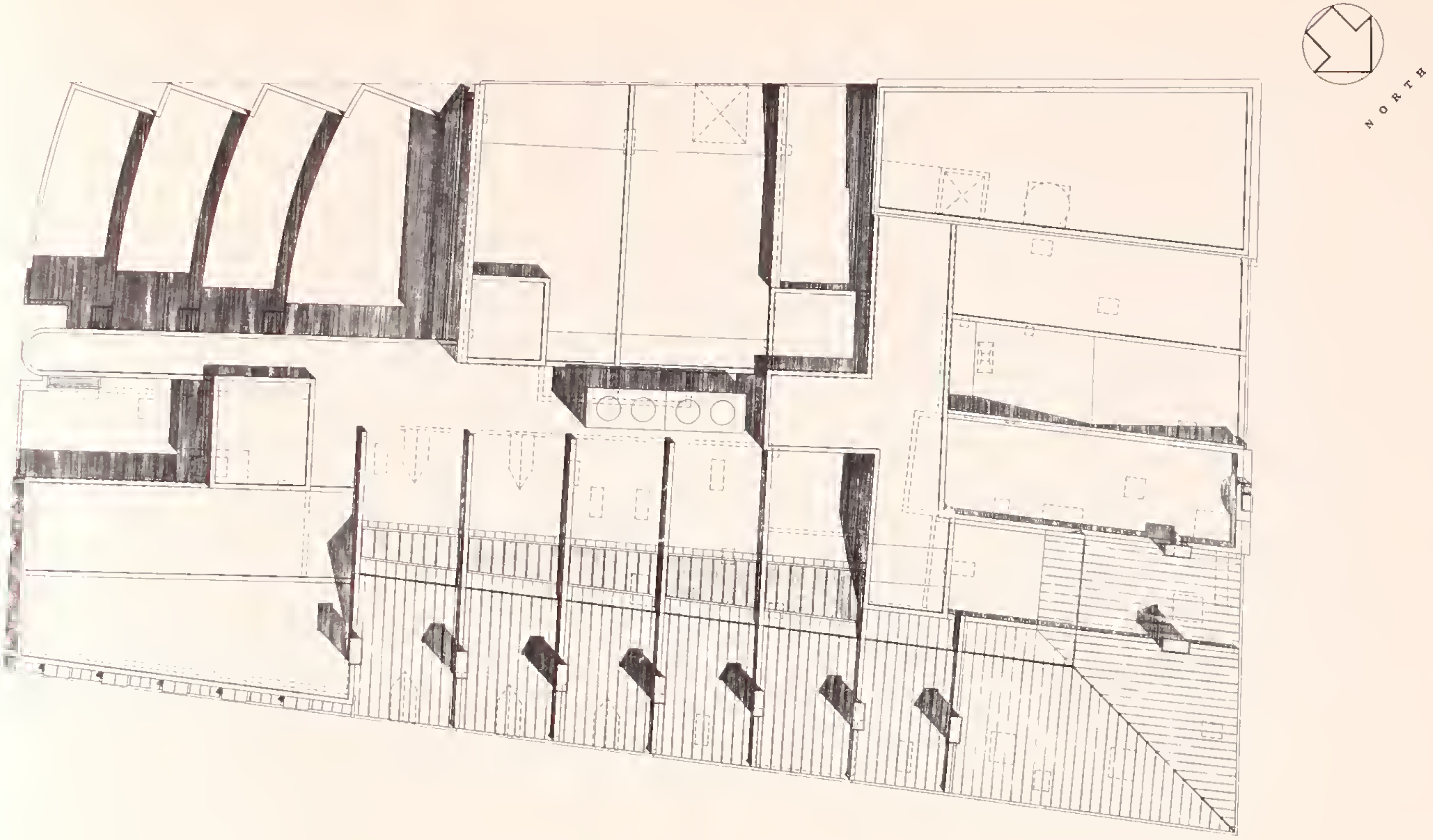
FIFTH LEVEL PLAN



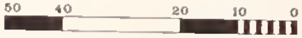
SIXTH LEVEL PLAN



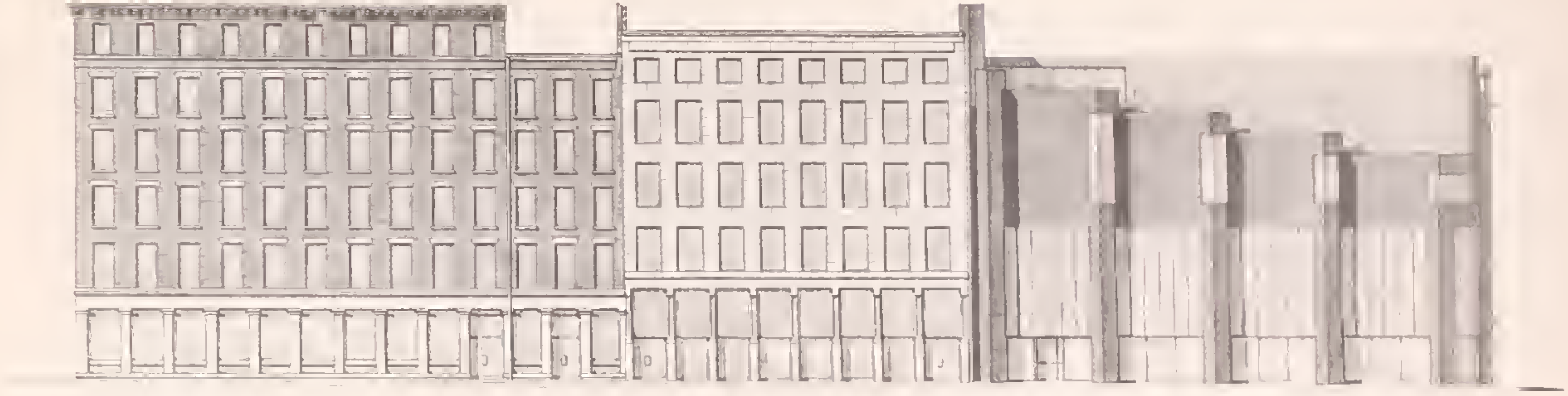
SEVENTH LEVEL PLAN



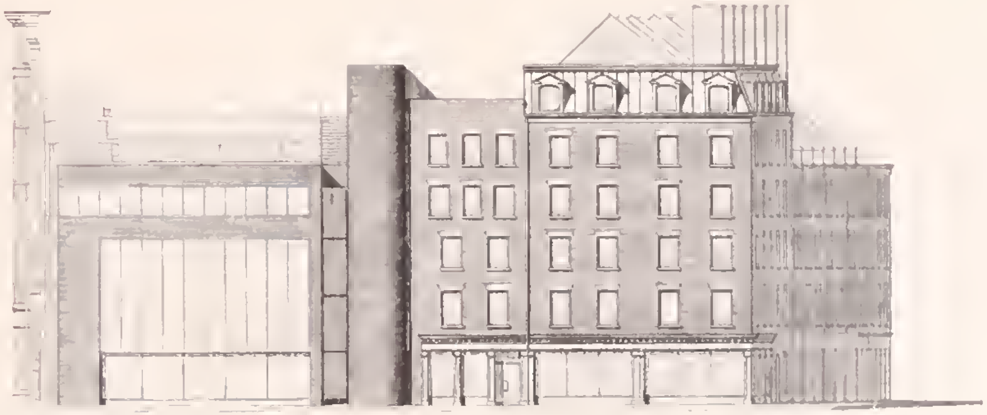
roof plan



ROOF PLAN

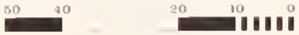


john street elevation

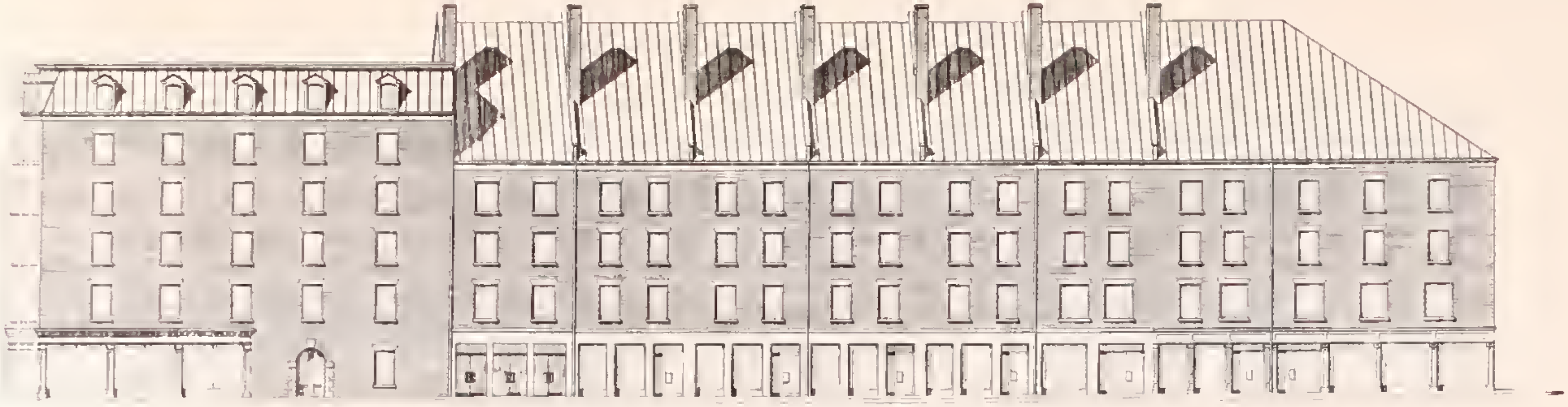


south street elevation

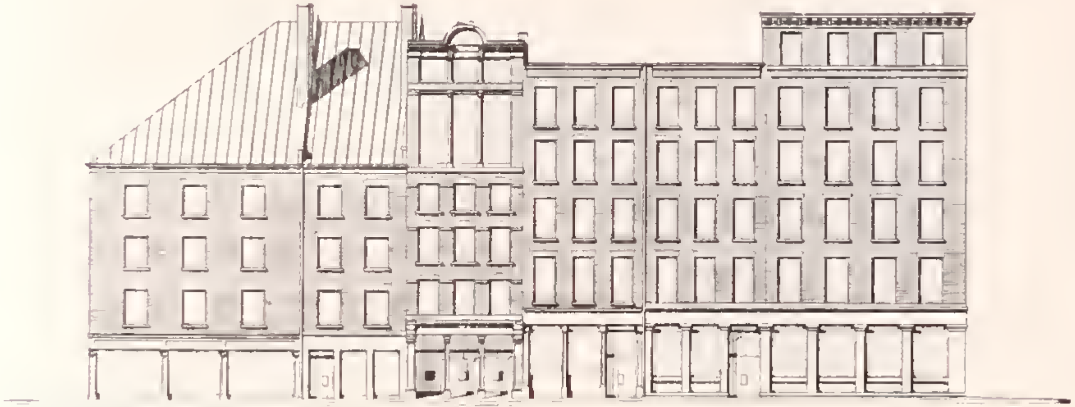
NOTE
BURLING SLIP STUDY I
AS INDICATED



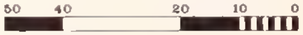
ELEVATIONS

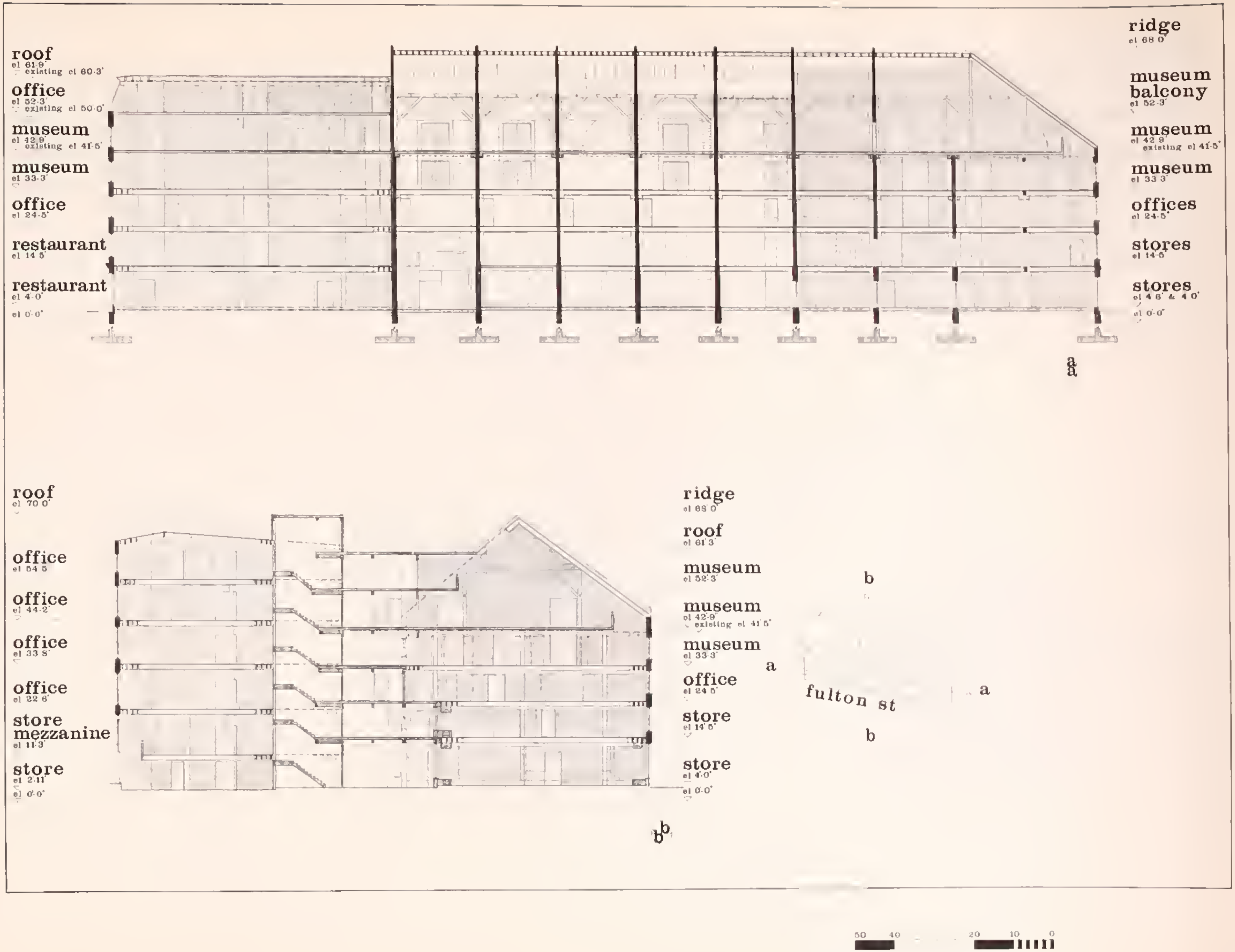


fulton street elevation

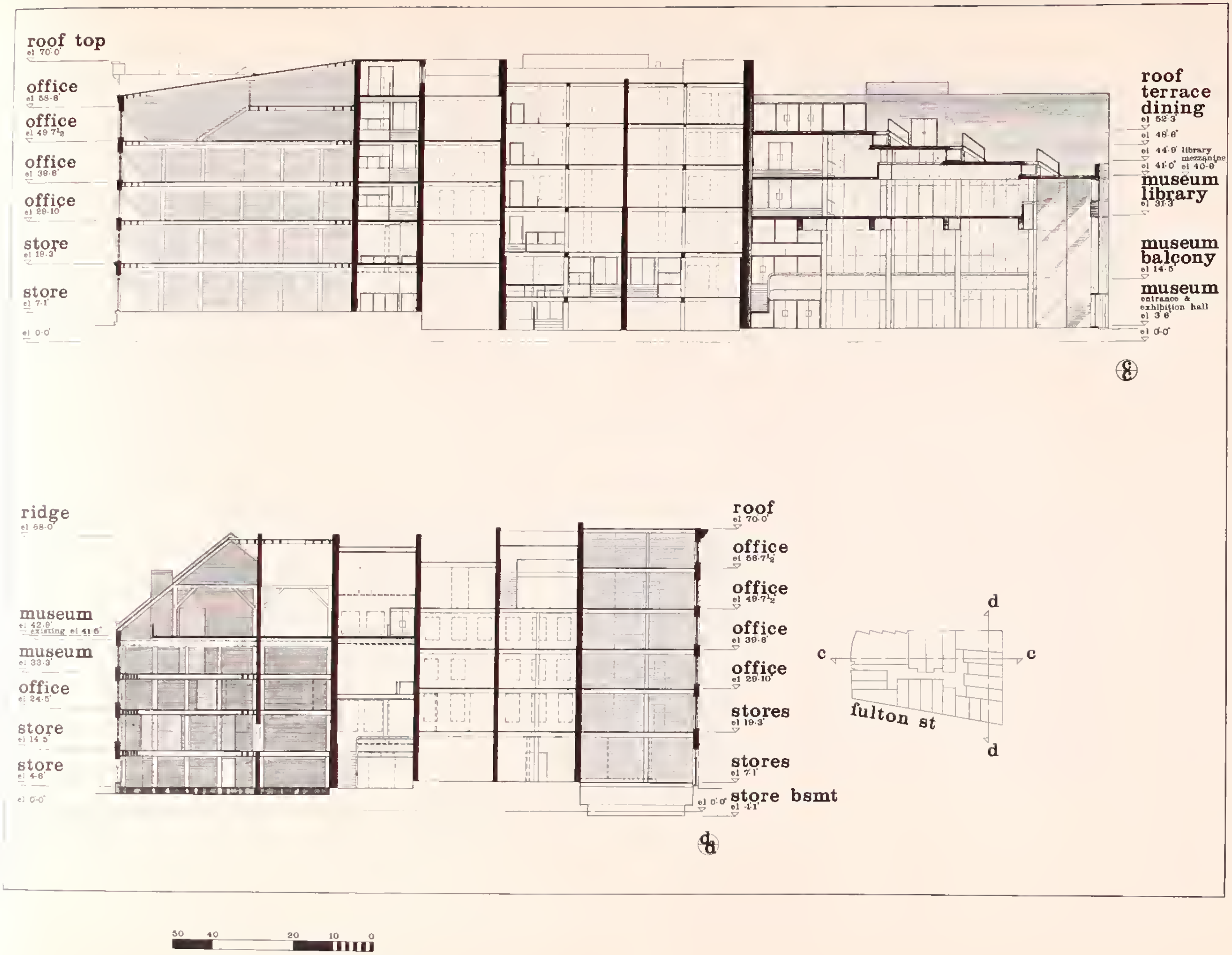


front street elevation

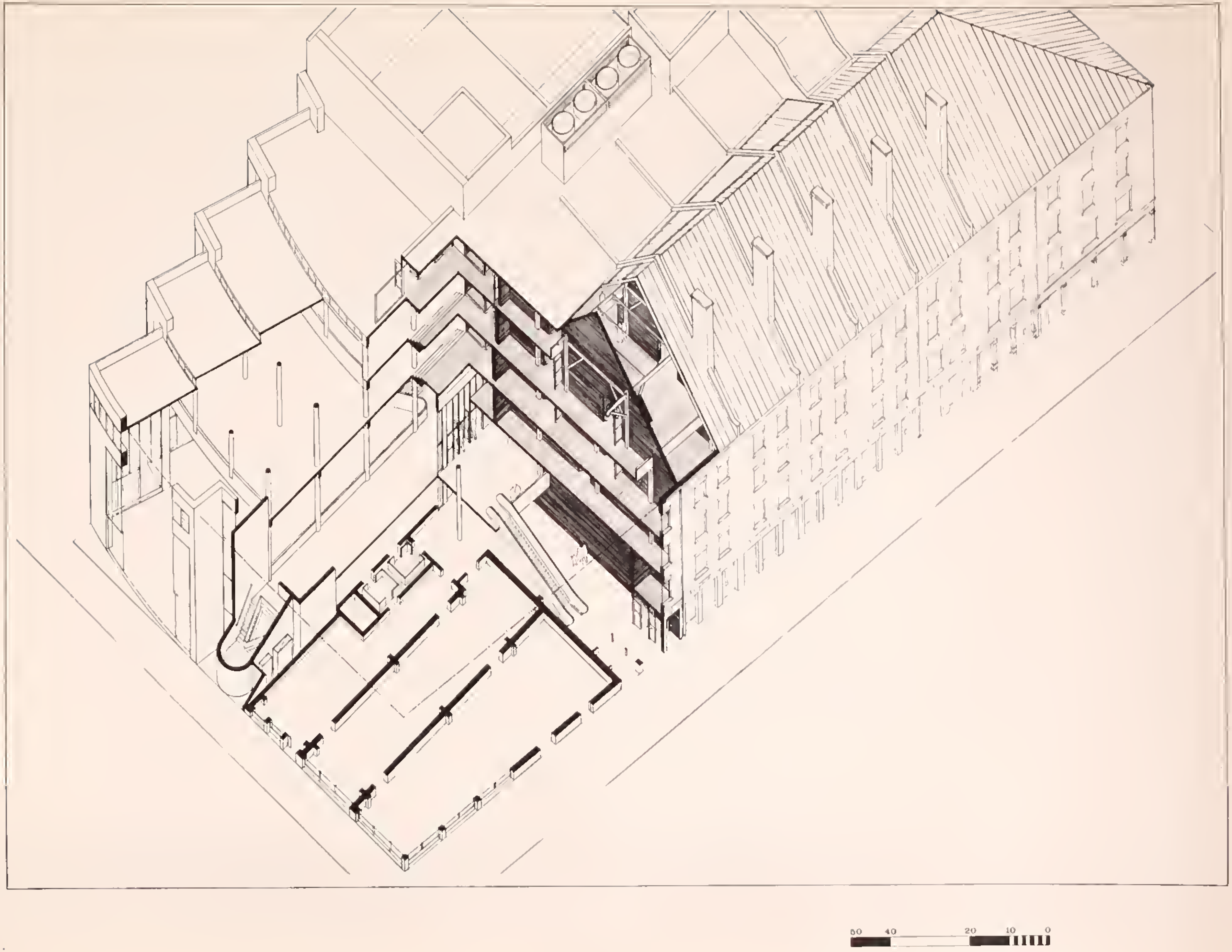




SECTION $\frac{a}{a}$ AND SECTION $\frac{b}{b}$



SECTION $\frac{c}{c}$ AND SECTION $\frac{d}{d}$



SECTIONAL AXONOMETRIC

NEW BUILDING SOLUTION B

Model of New Building Solution B South Street View 82

Model of New Building Solution B John Street View 83

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Second Level Plan (Showing Burling Slip Study 2) 85

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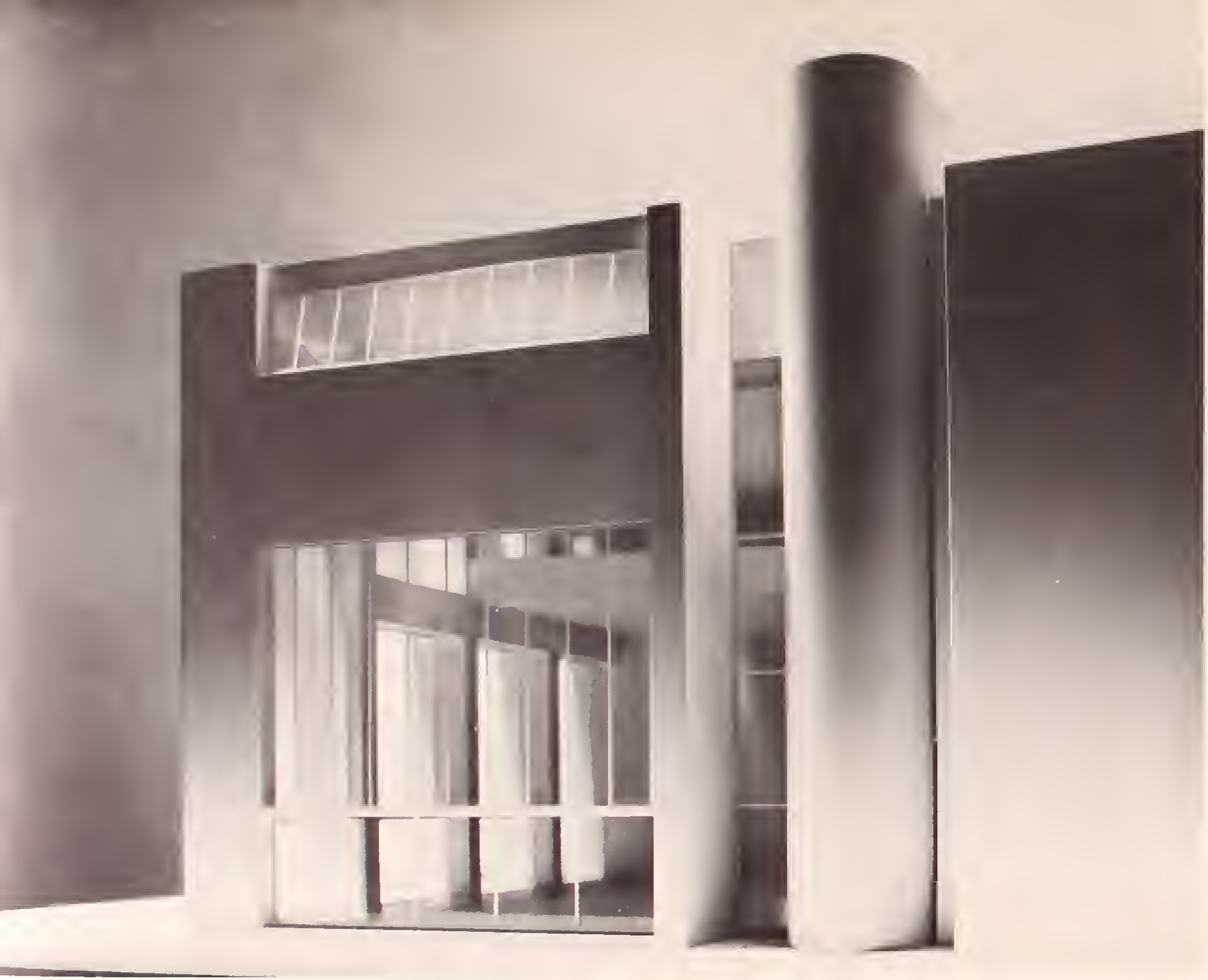
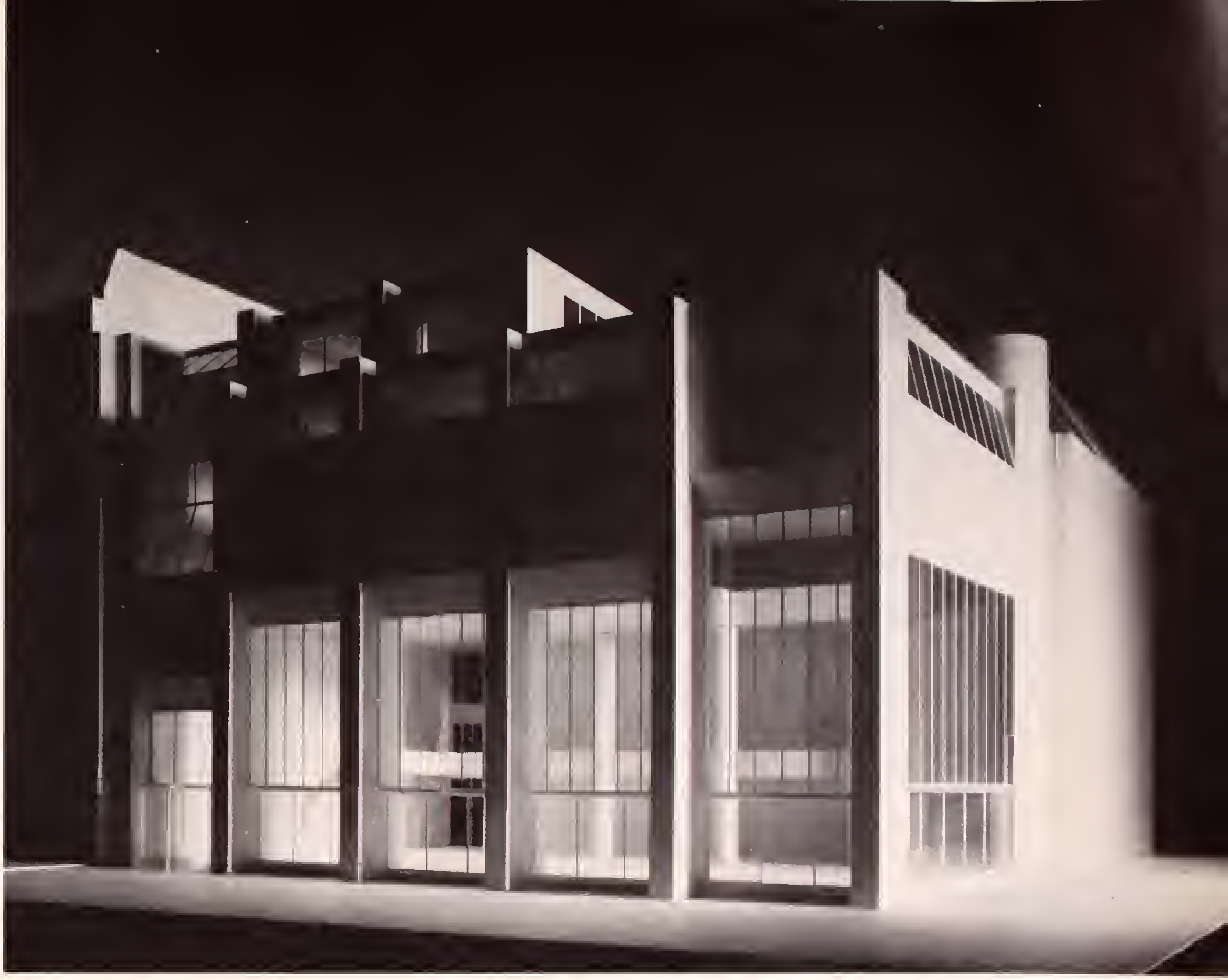
The new Museum building relates the top of the parapet wall of the elevation on South Street to the gutter line of the old building at the corner of South Street and Fulton Street. From this level the roof rises to meet the roof of the John Street Building. The penthouse space on this roof lends itself to an all-year-round-cafe. The building expresses the interior spaces of various different heights with a bay arrangement which harmonizes with the fire walls of the old properties.

In the drawings, stepped terraces are shown on Burling Slip. These will permit access to the commercial retail arcades at both levels. The raised platform can become the extension of restaurants or cafes, or emphasize special exhibition material.

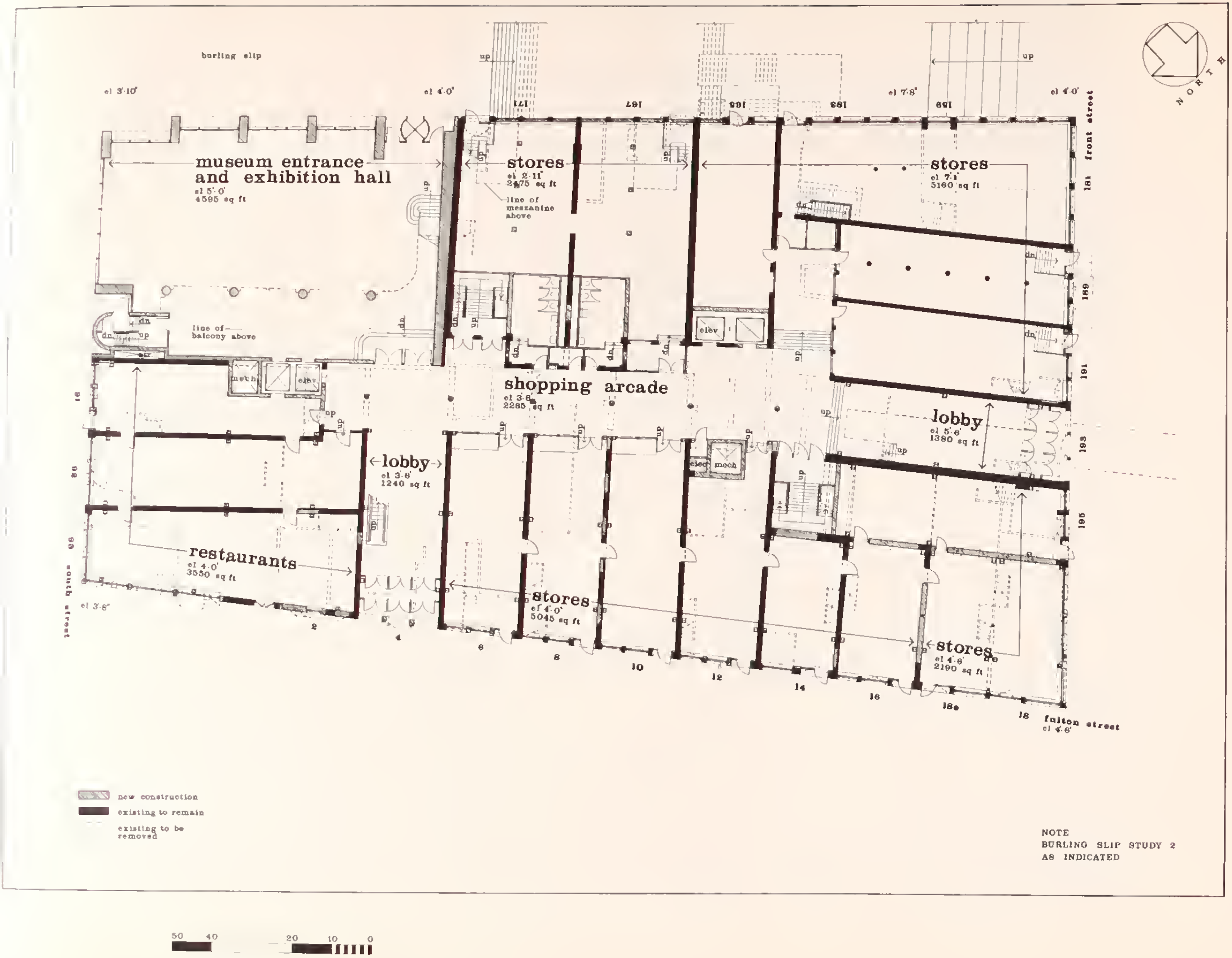
A bridge is also shown connecting the upper level of the commercial retail arcade to the department store (Korvette) within the Telephone Building.



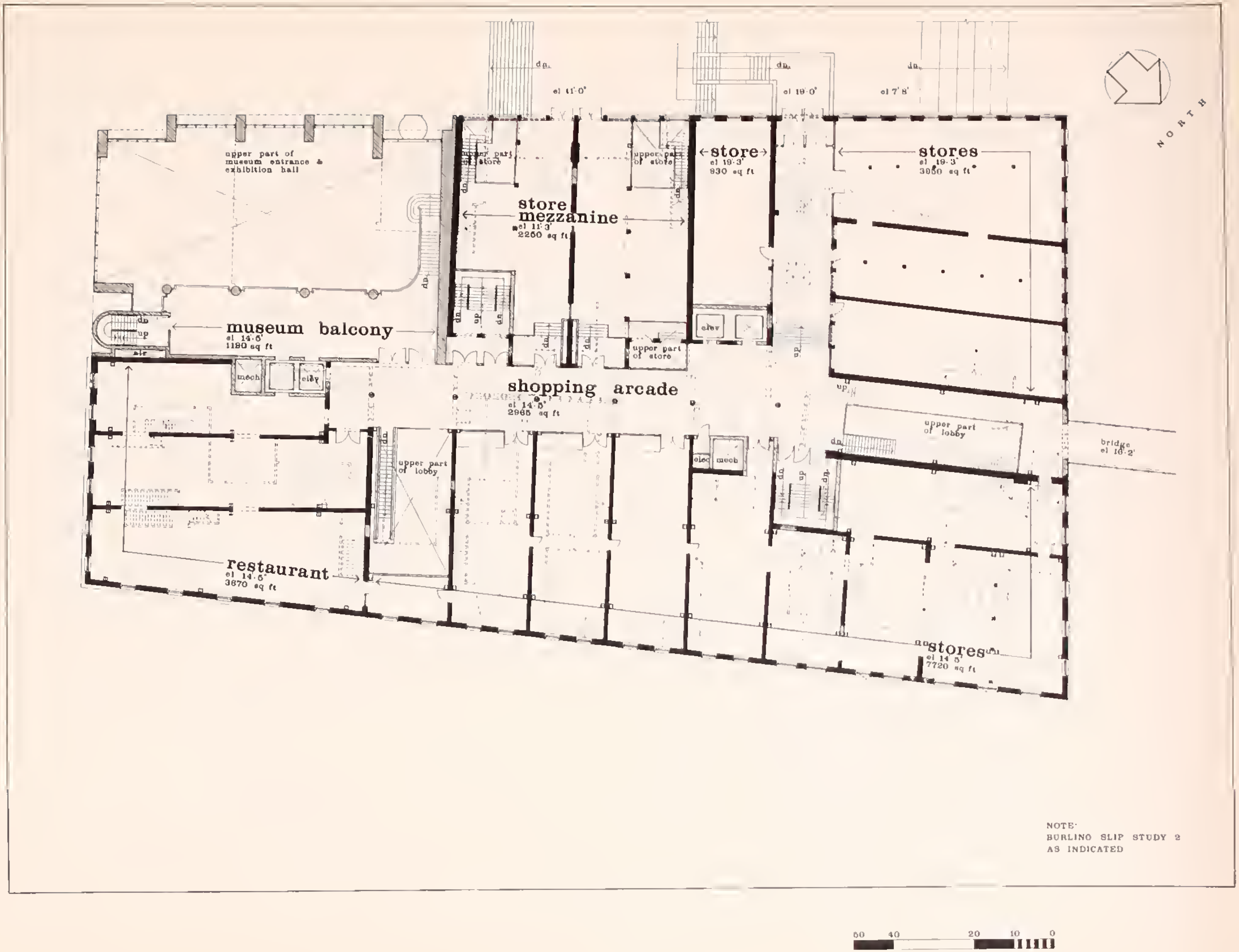
MODEL OF NEW BUILDING, SOLUTION B — SOUTH STREET VIEW



MODEL OF NEW BUILDING, SOLUTION B — JOHN STREET VIEW

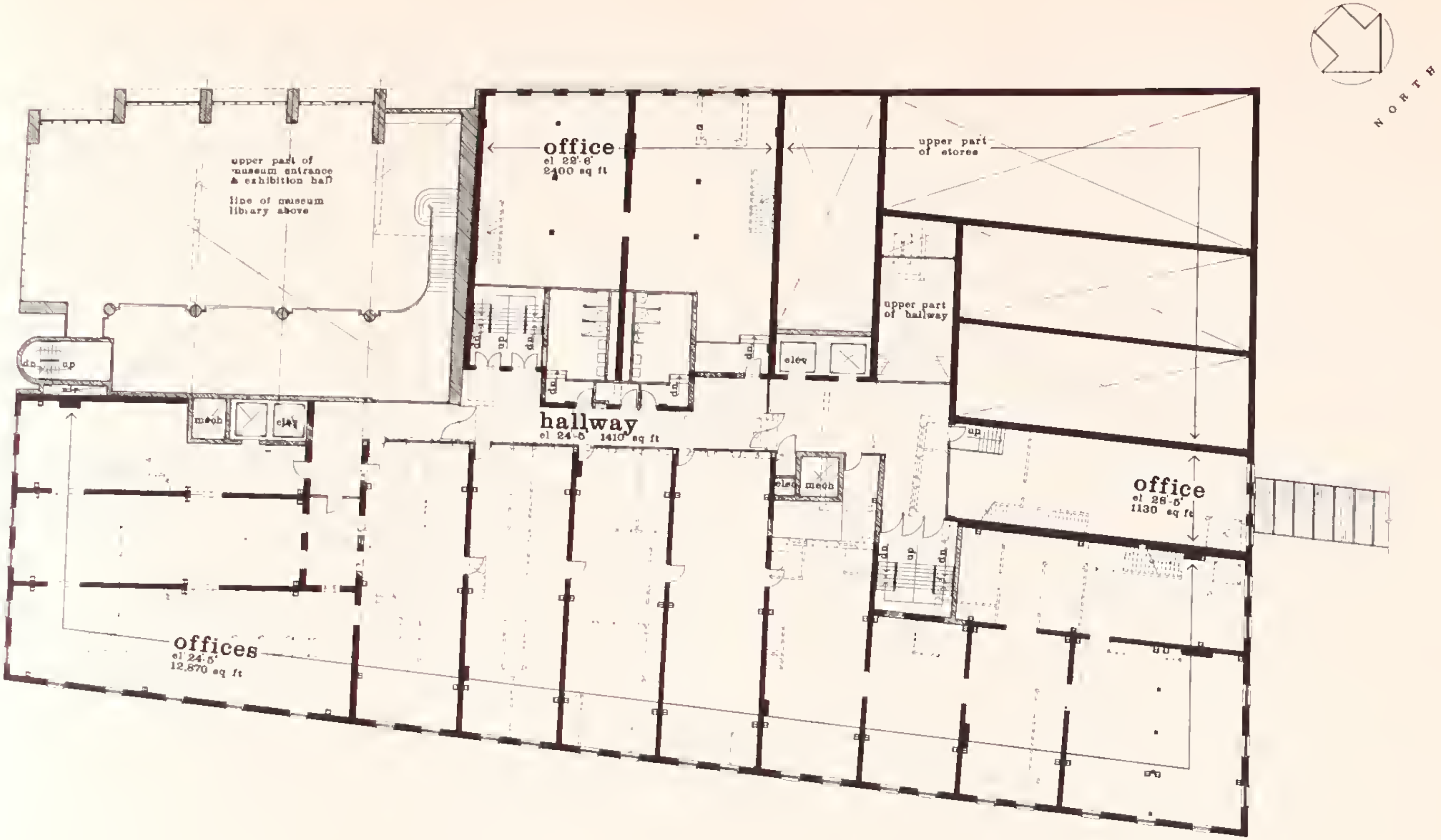


GROUND LEVEL PLAN



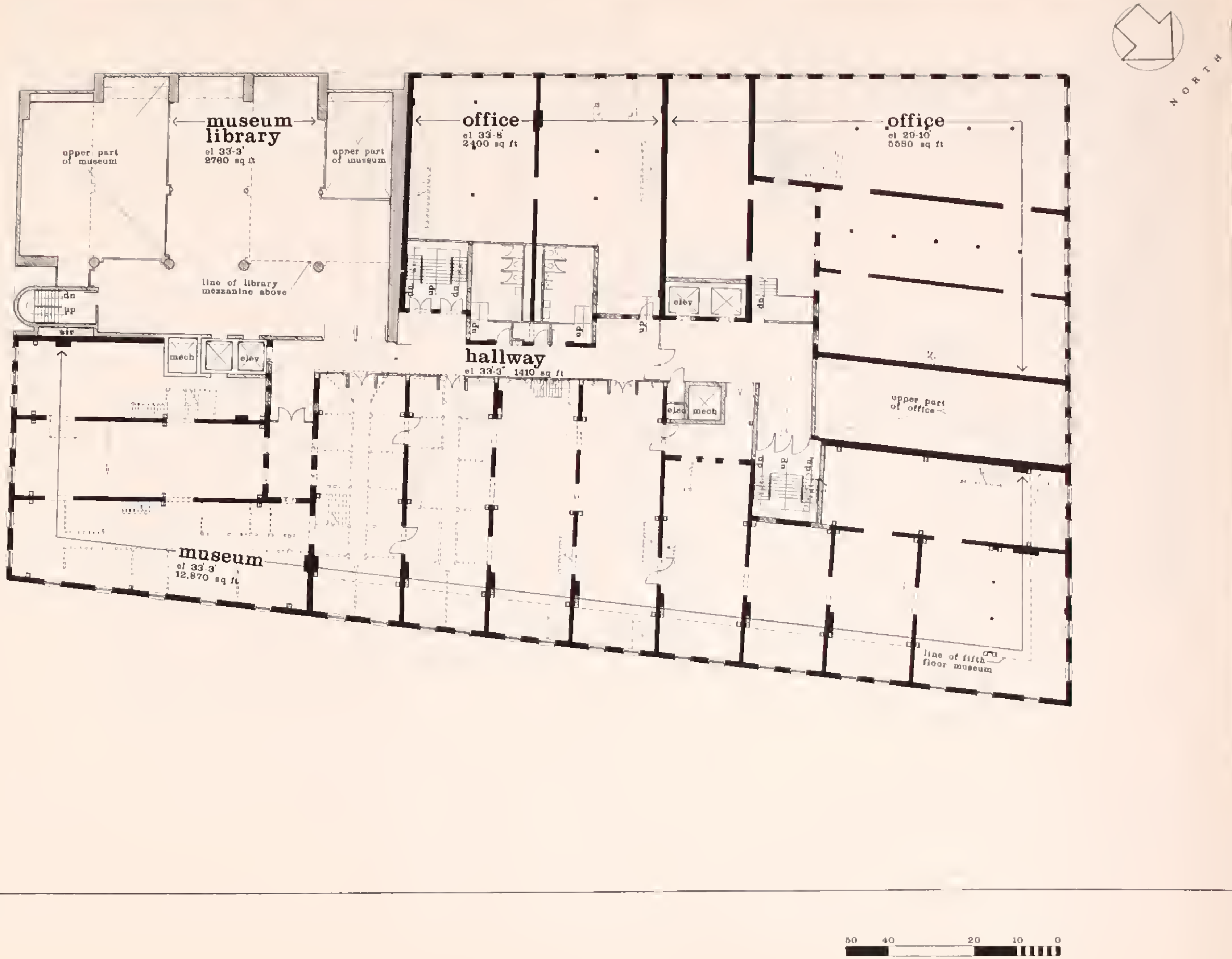
NOTE:
BURLING SLIP STUDY 2
AS INDICATED

SECOND LEVEL PLAN

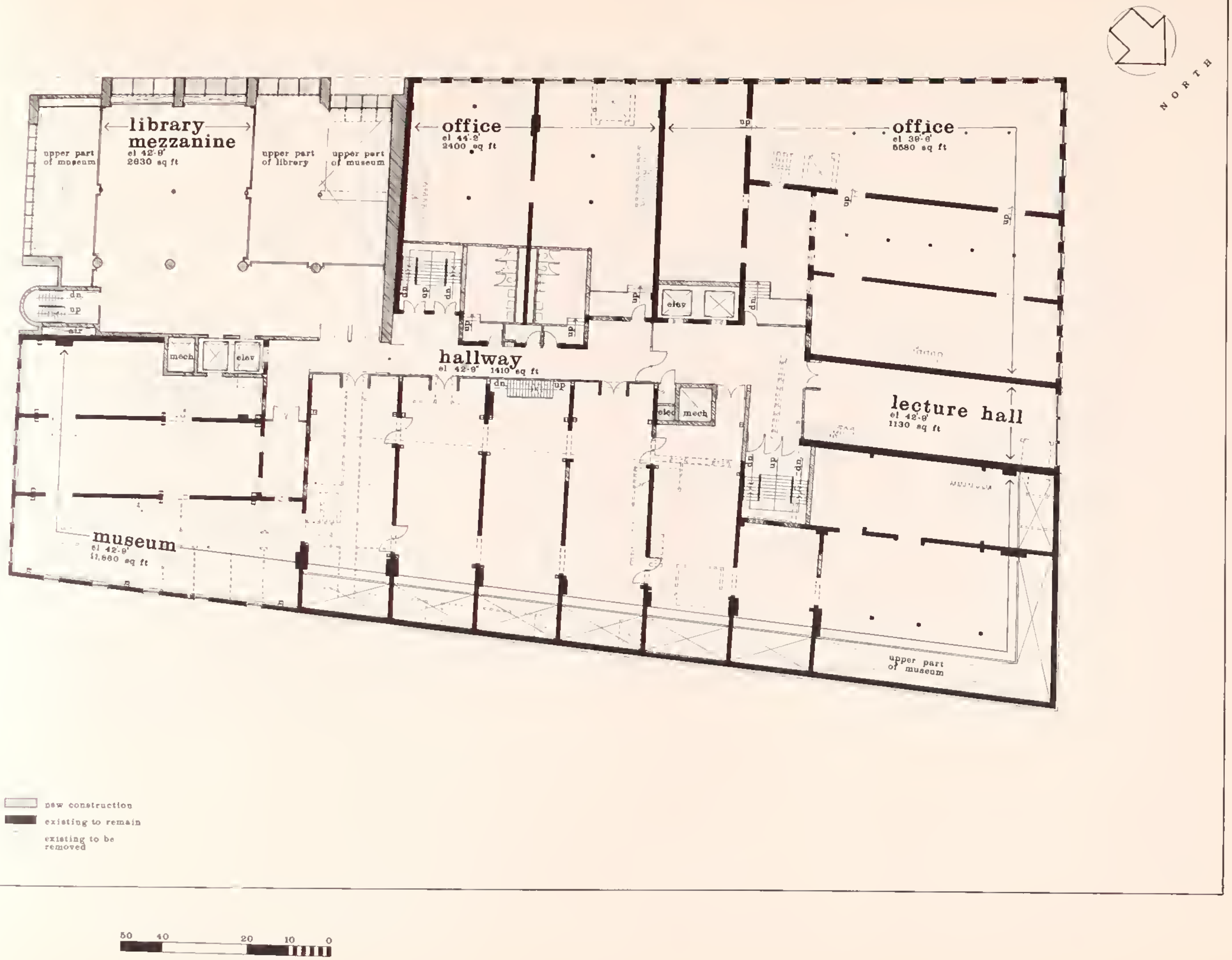


NOTE
BURLING SLIP STUDY 2
AS INDICATED

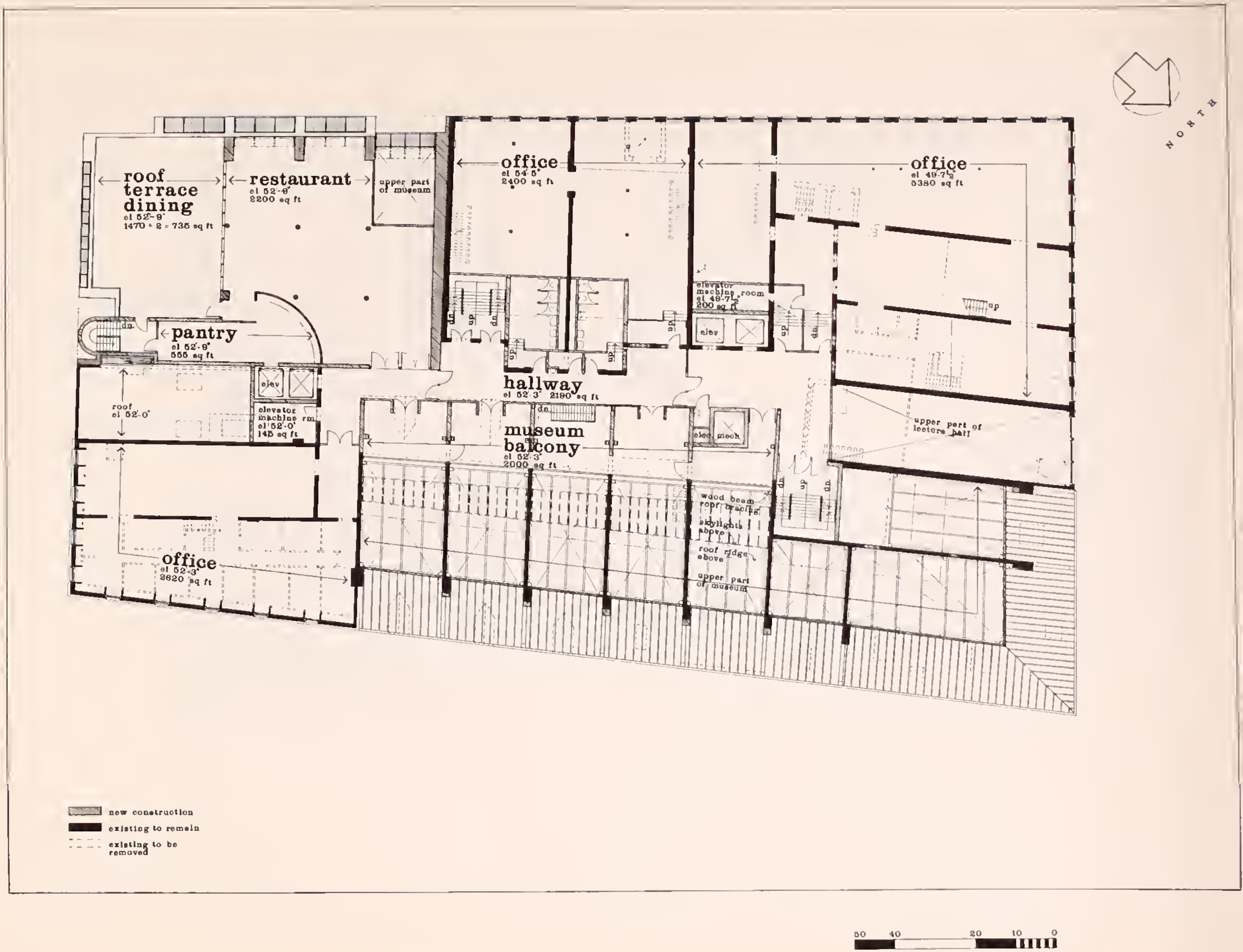
THIRD LEVEL PLAN



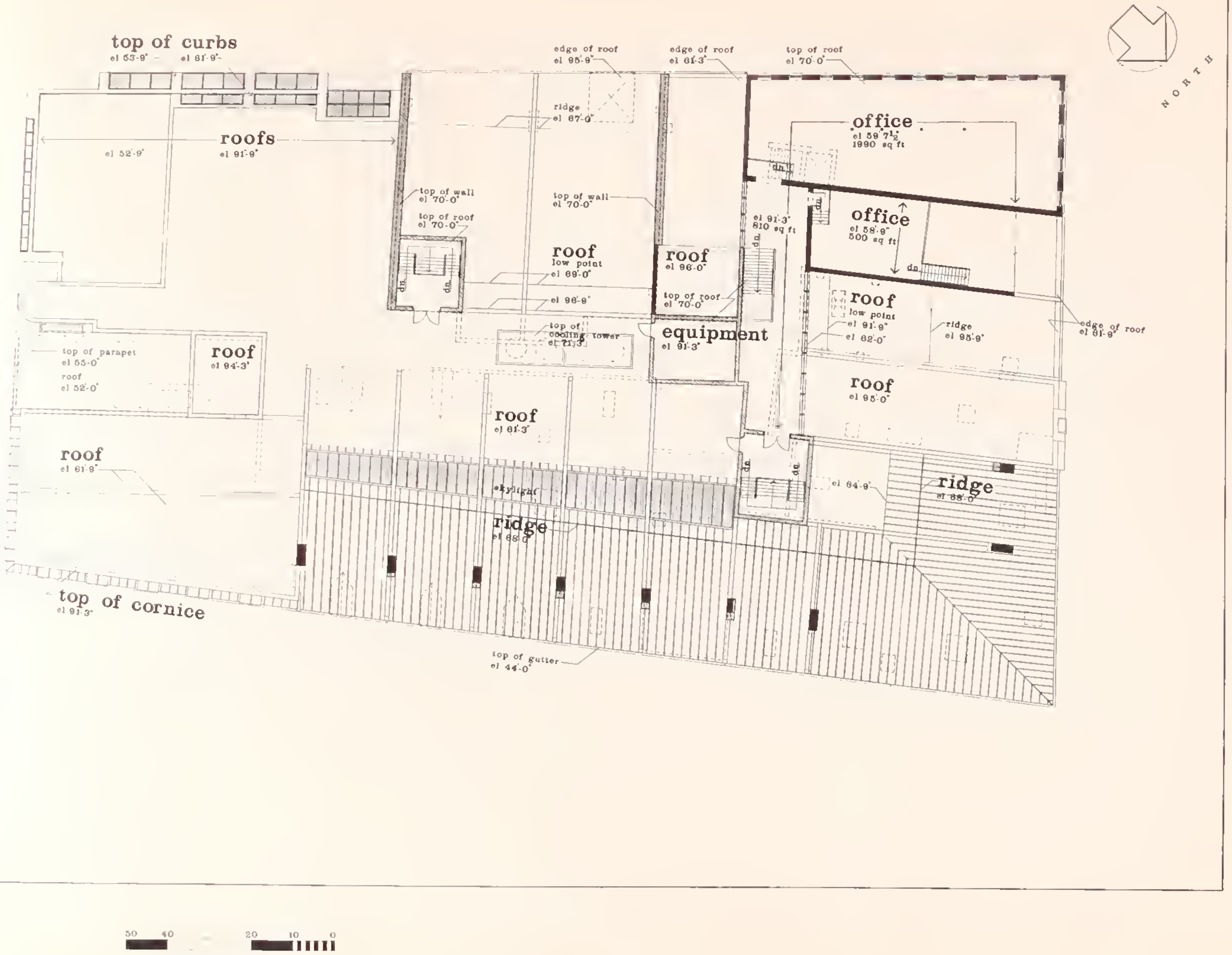
FOURTH LEVEL PLAN



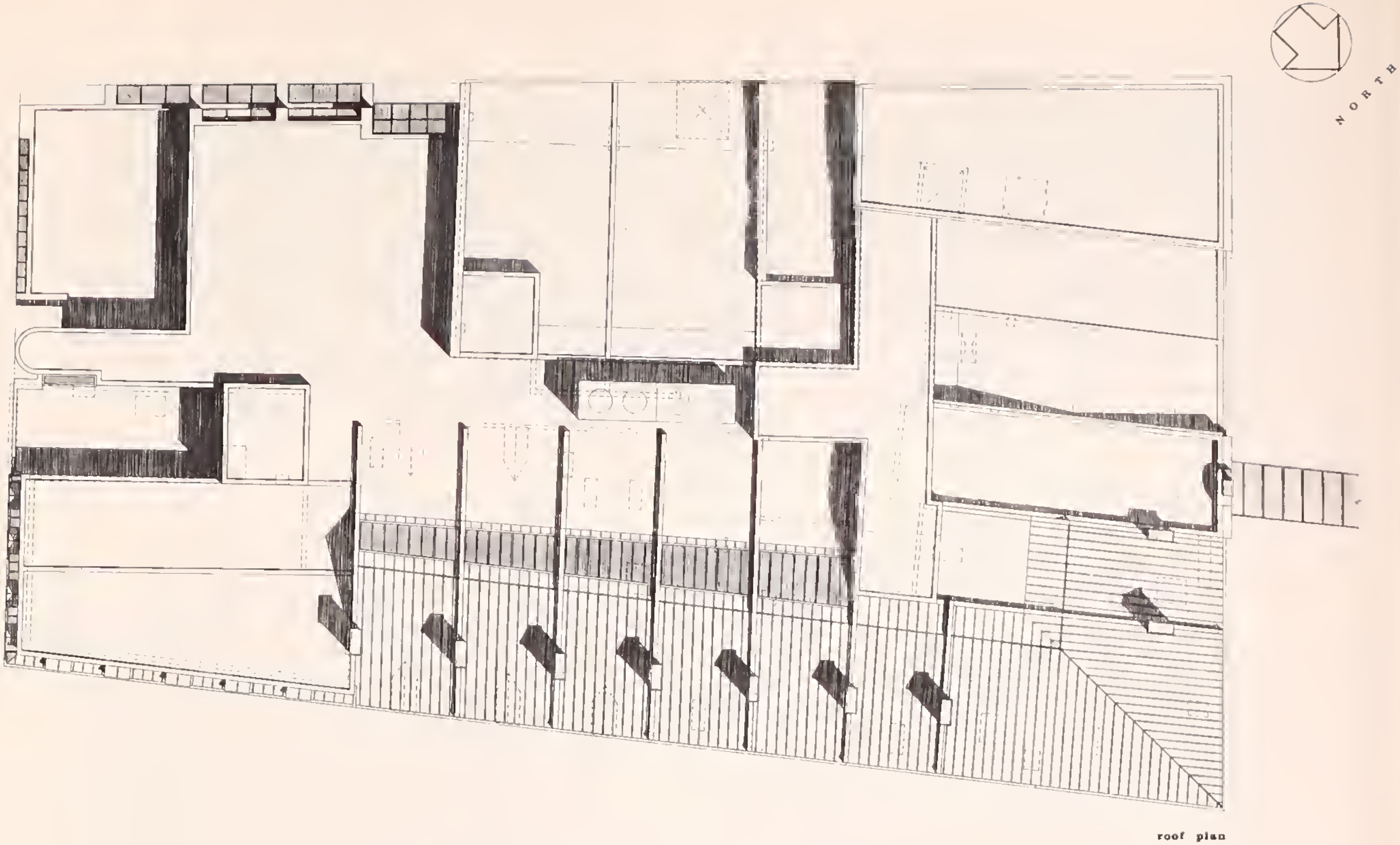
FIFTH LEVEL PLAN

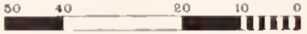


SIXTH LEVEL PLAN

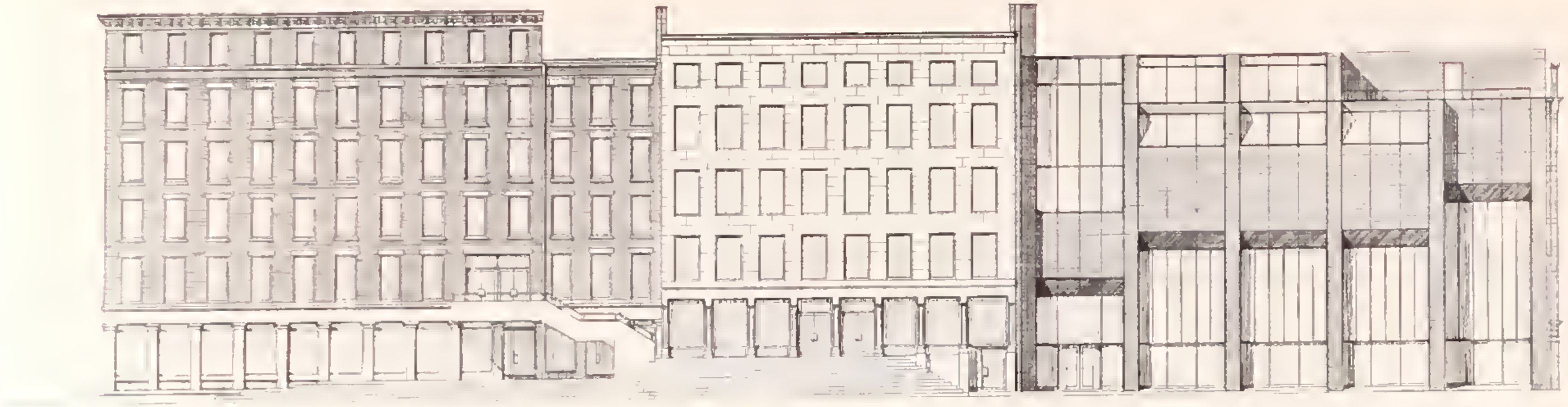


SEVENTH LEVEL PLAN

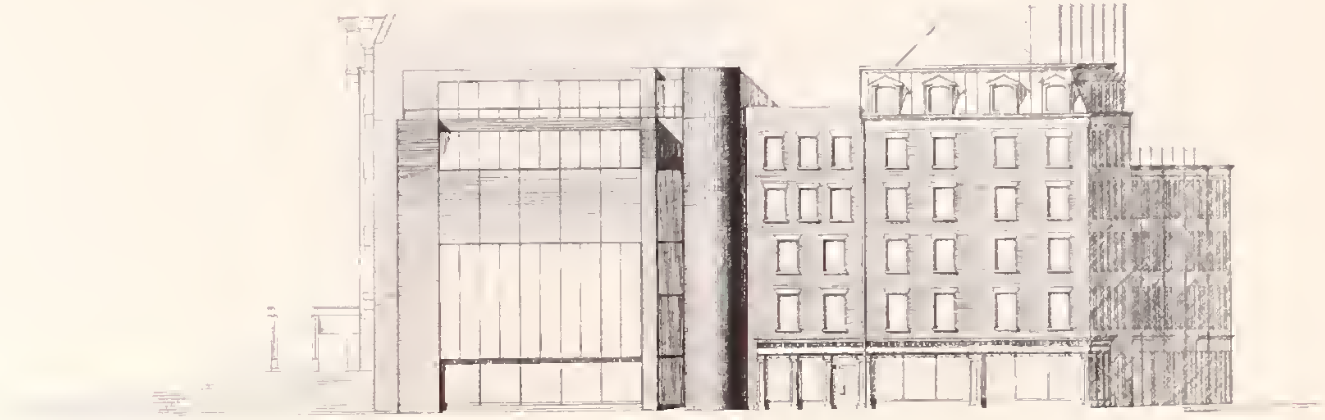




ROOF PLAN

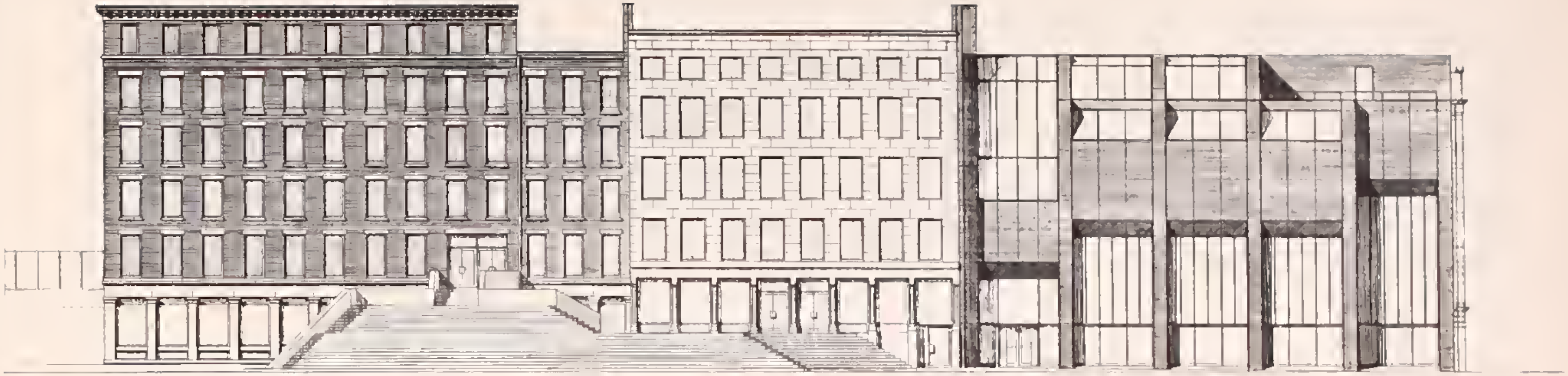


john street elevation

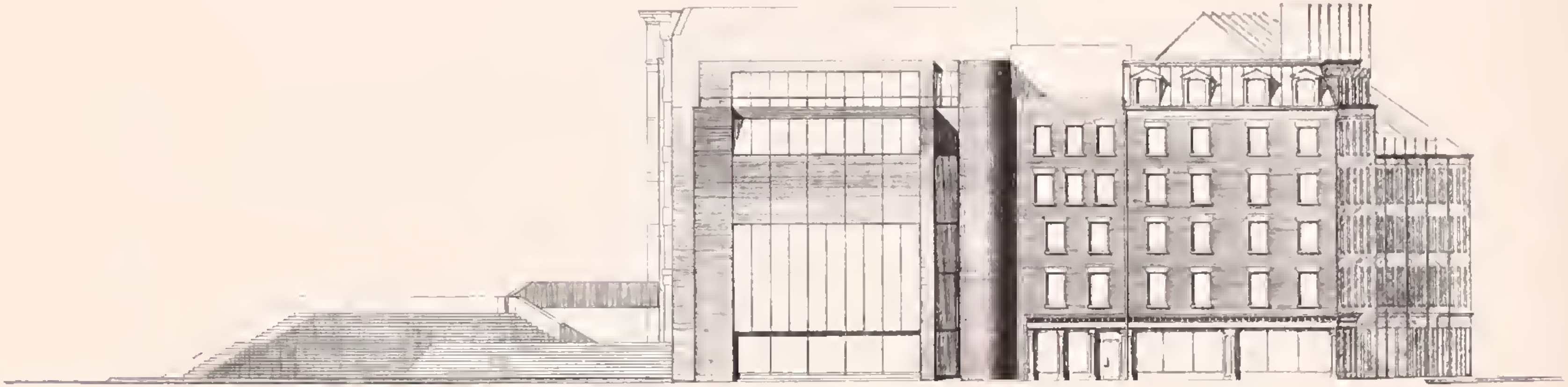


south street elevation

NOTE:
BURLING SLIP STUDY 2
AS INDICATED

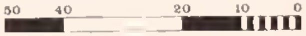


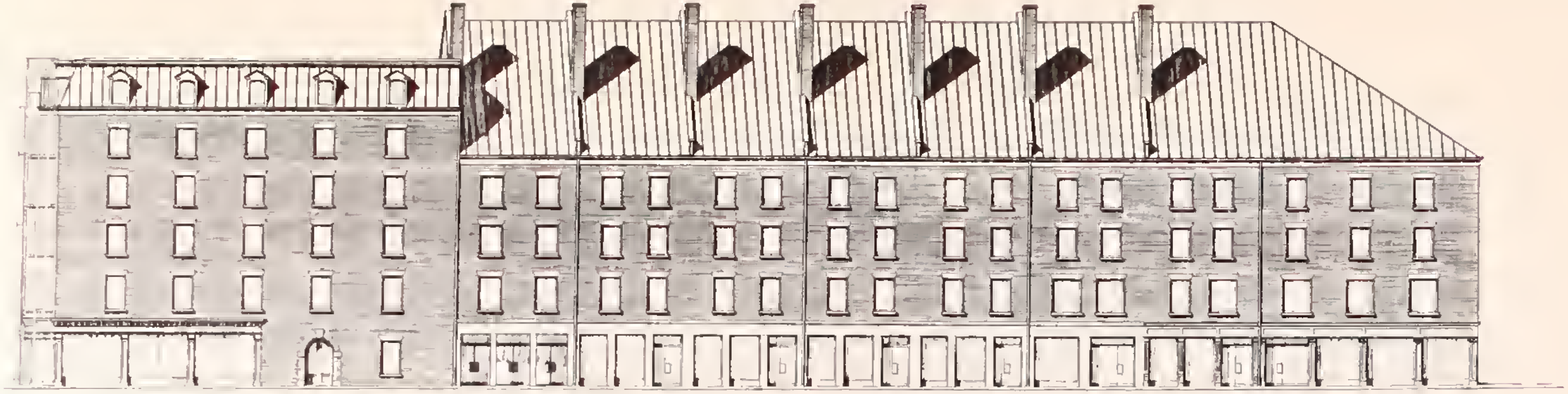
john street elevation



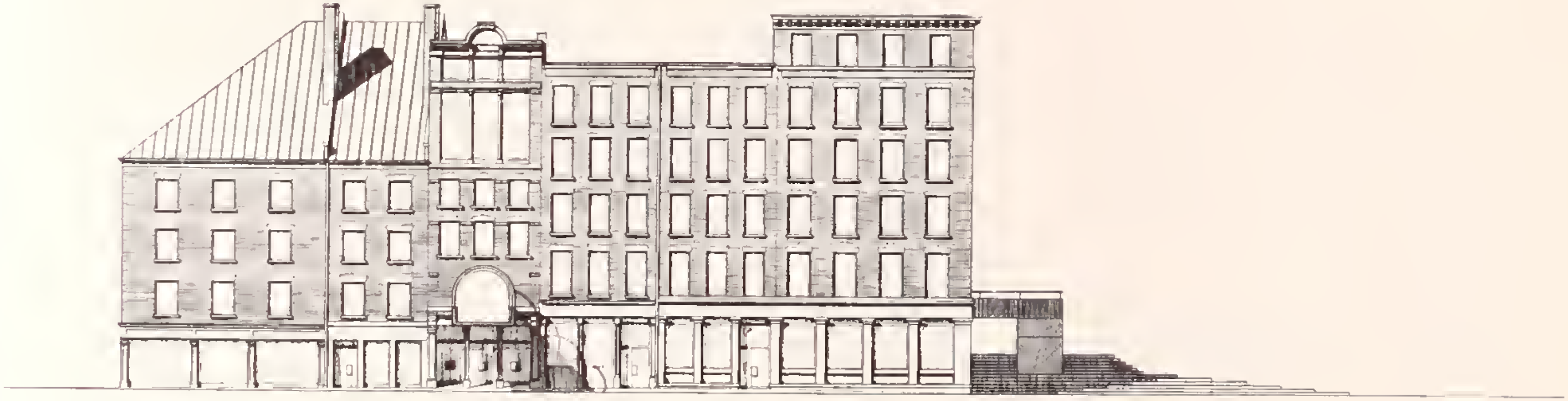
south street elevation

NOTE:
BURLING SLIP STUDY 3
AS INDICATED



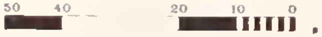


fulton street elevation

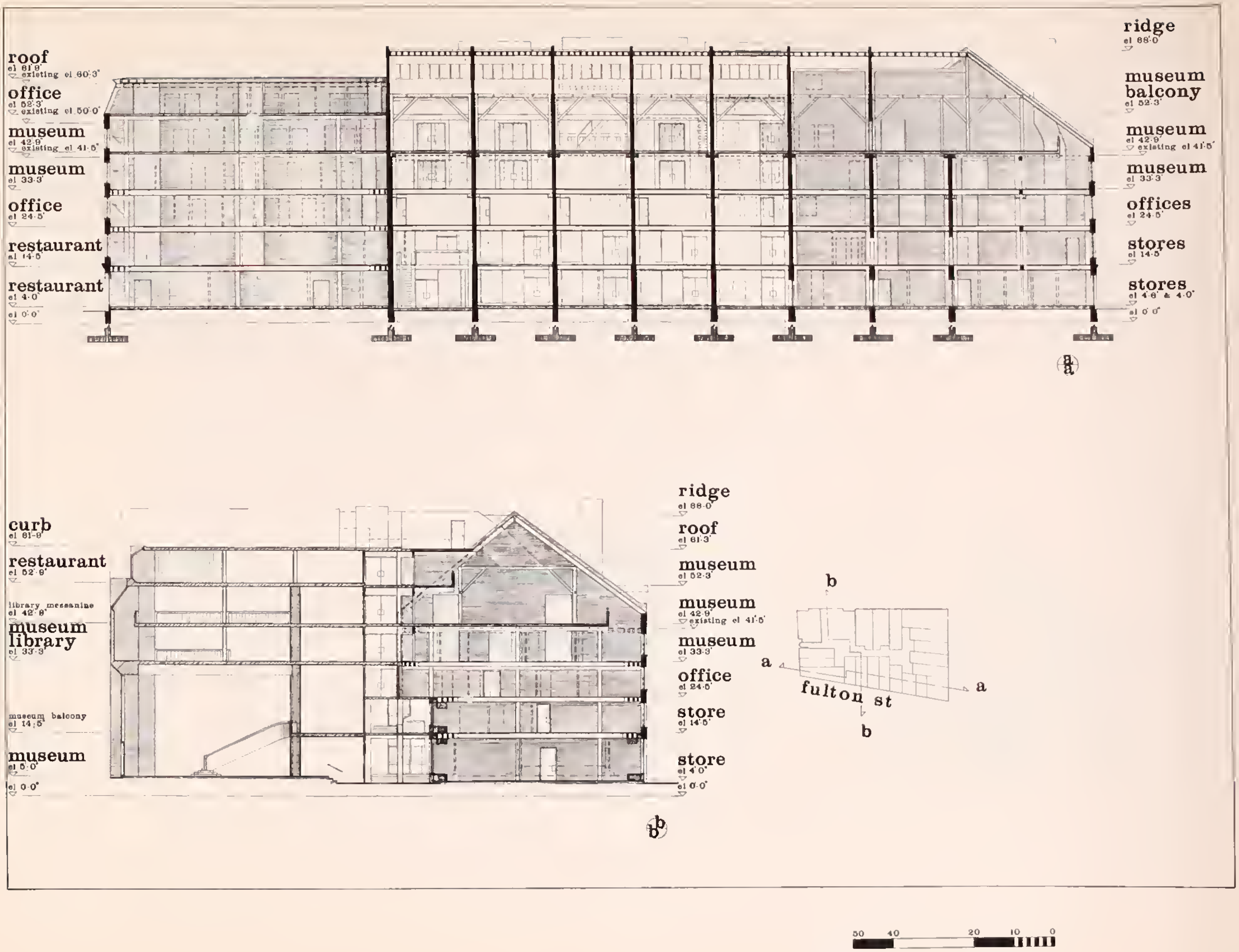


front street elevation

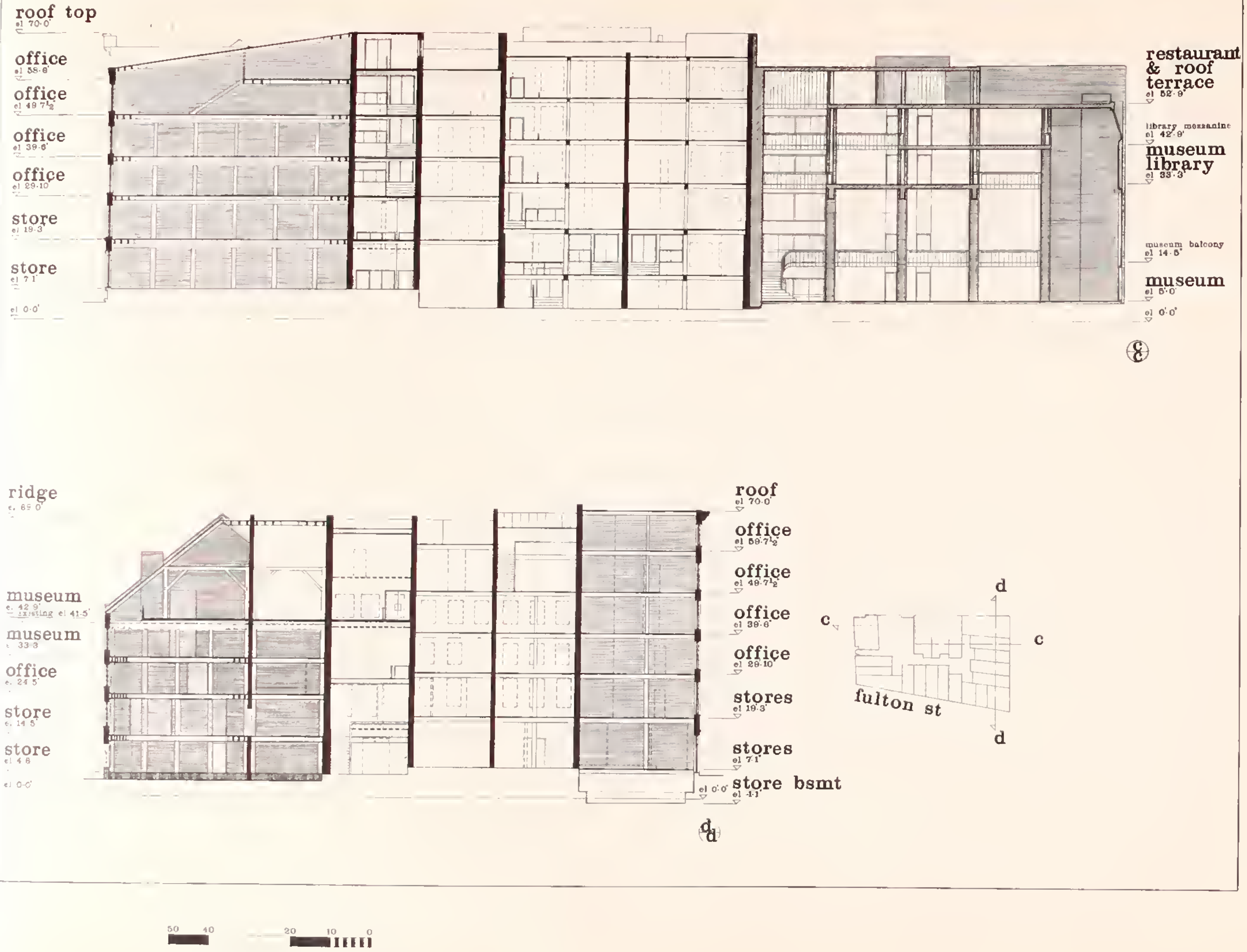
NOTE
BURLING SLIP STUDY 2
AS INDICATED



ELEVATIONS



SECTION $\frac{a}{a}$ AND SECTION $\frac{b}{b}$



SECTION $\frac{c}{c}$ AND SECTION $\frac{d}{d}$

DETAIL AND ENGINEERING STUDIES

Model, Fulton Street–Front Street View 98

Typical Arcade and Wall Section
(Showing suggestion for retail establishment signs) 99

Structural Plans, Ground through 4th Level
(Showing new building, Solution A) 100

Structural Plans, 5th through 7th Level
(Showing new building, Solution A) 101

Mechanical and Electrical Plans, Cellar through 2nd Level
(Showing new building, Solution A, typical store layout.) 102

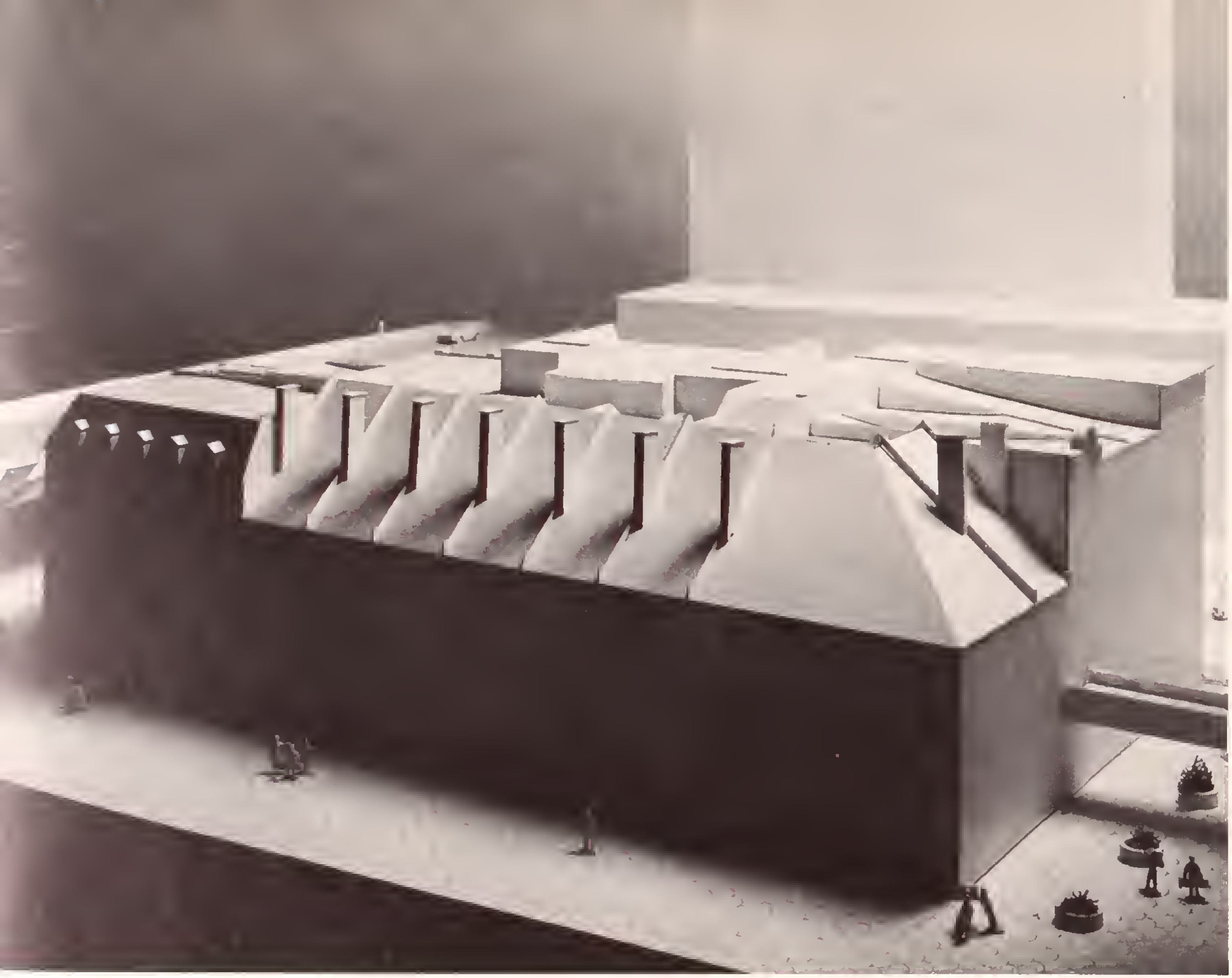
Mechanical and Electrical Plans, Cellar through 2nd Level
(Showing new building, Solution B with Burling Slip Study 3
and typical store layout.) 103

Mechanical and Electrical Plans, 3rd Level through 5th Level
(Showing new building, Solution A and typical office layout.) 104

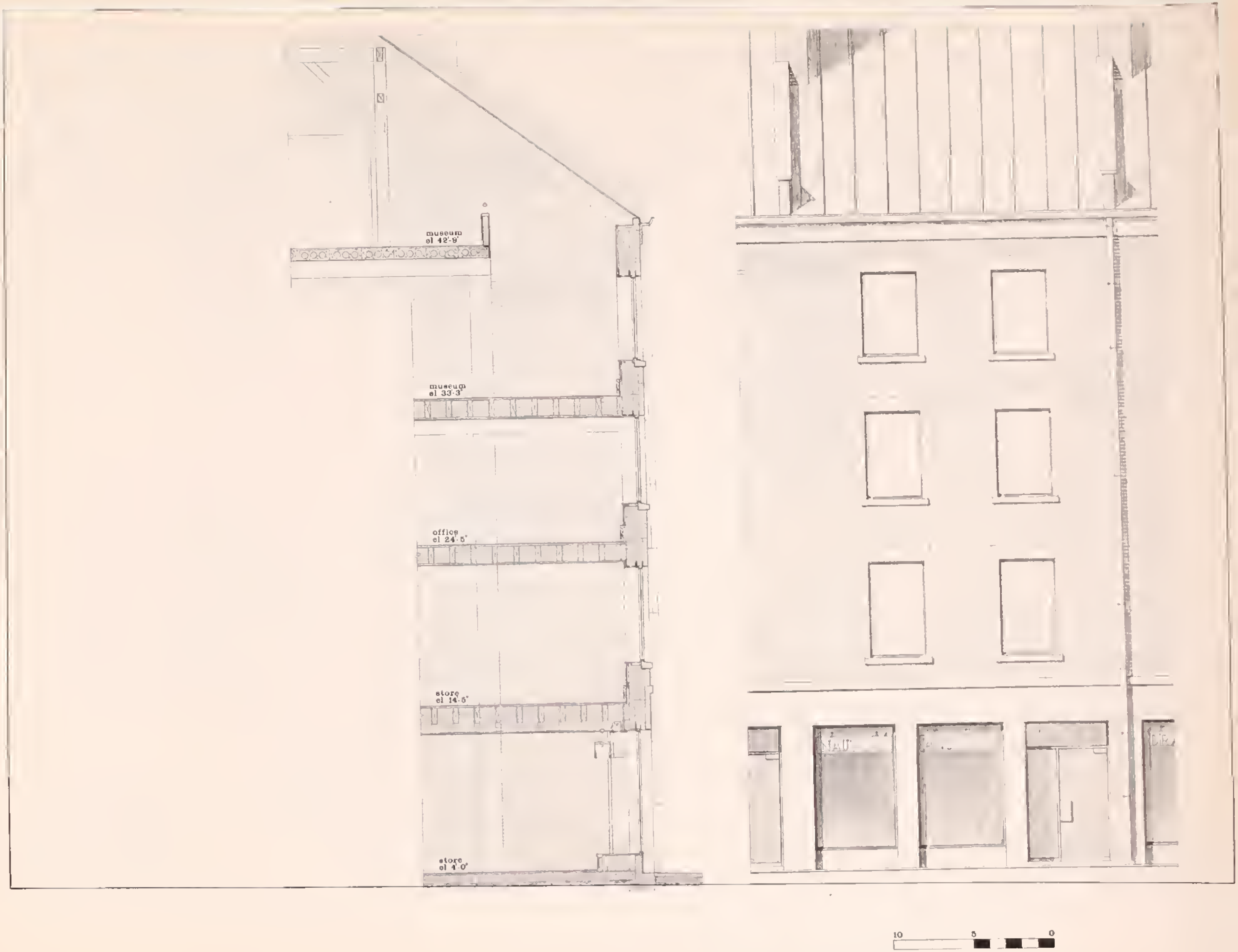
Mechanical and Electrical Plans, 6th Level through 7th Level
(Showing new building, Solution A, typical Museum layout
and electric riser diagram.) 105

The location of the mechanical equipment requires a decision of major importance. It is practically impossible to count on any of the existing spaces for this equipment installation due to size of the spaces, ceiling heights and loading capability of the structures. If the basement of the new building is selected, protection will be needed against the possible high tides, a protection which is expensive and never really foolproof.

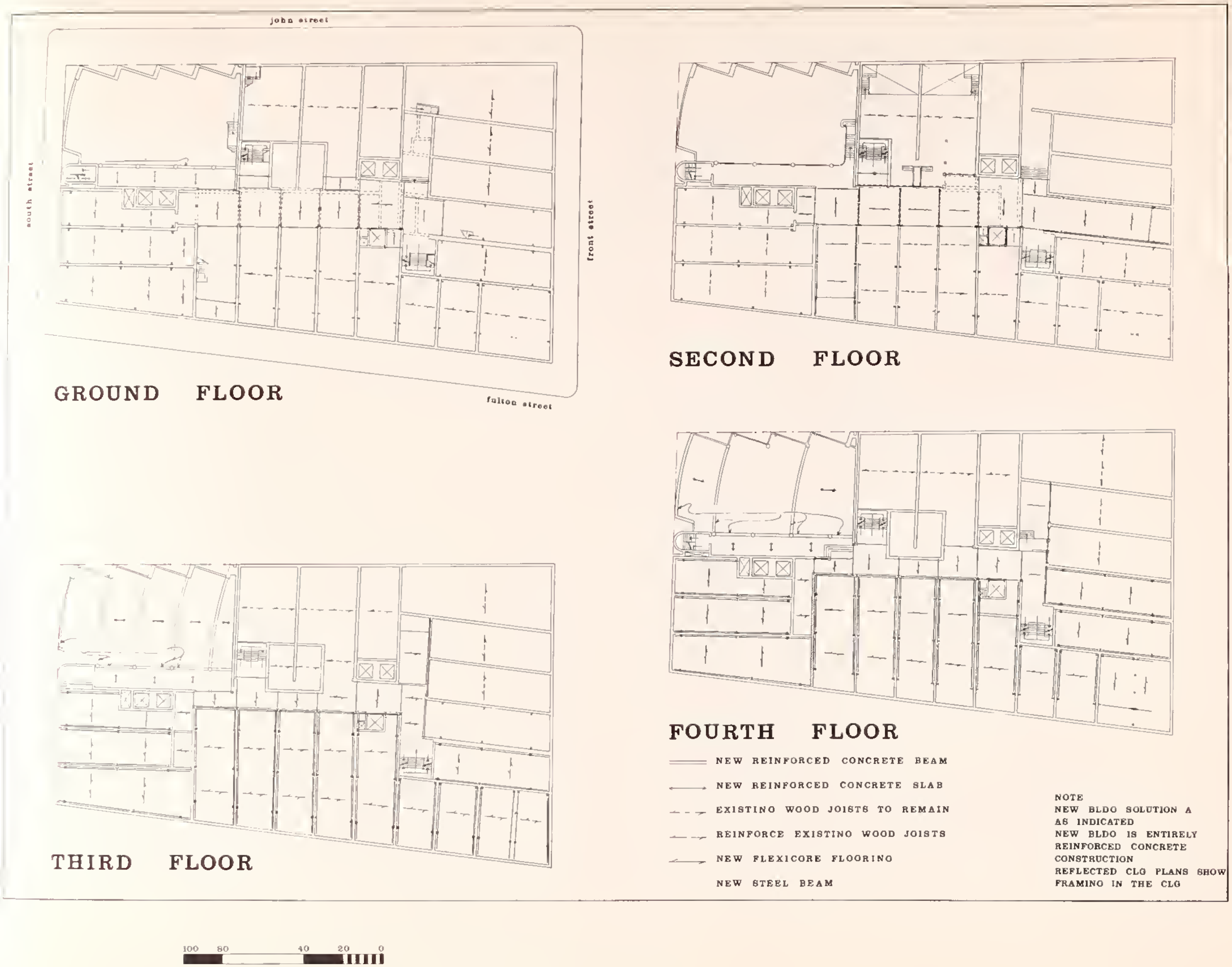
The treatment of the plaza as a multi-level space would permit a mechanically desirable alternative.



MODEL, FULTON STREET - FRONT STREET VIEW



TYPICAL ARCADE AND WALL SECTION



GROUND FLOOR

SECOND FLOOR

THIRD FLOOR

FOURTH FLOOR

NEW REINFORCED CONCRETE BEAM

NEW REINFORCED CONCRETE SLAB

EXISTING WOOD JOISTS TO REMAIN

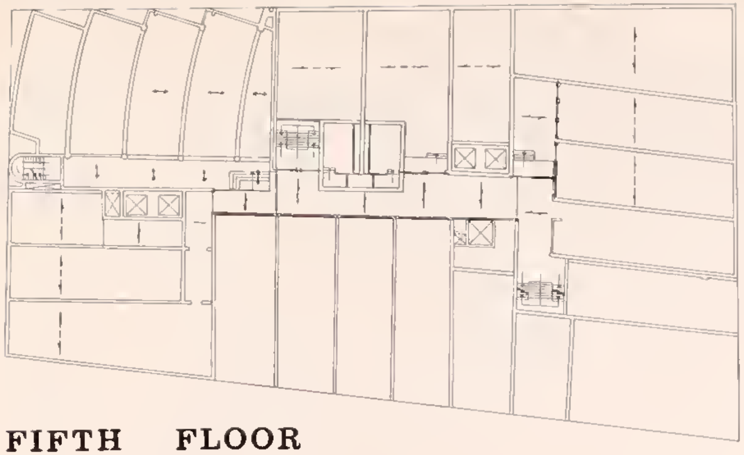
REINFORCE EXISTING WOOD JOISTS

NEW FLEXICORE FLOORING

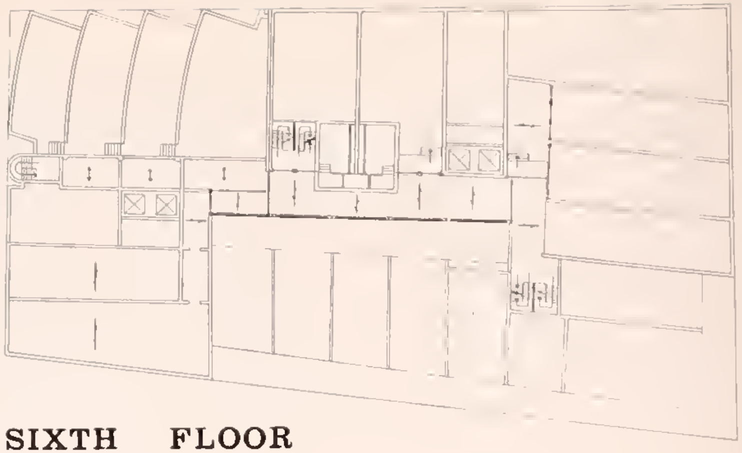
NEW STEEL BEAM

NOTE
NEW BLDG SOLUTION A
AS INDICATED
NEW BLDG IS ENTIRELY
REINFORCED CONCRETE
CONSTRUCTION
REFLECTED CLG PLANS SHOW
FRAMING IN THE CLG

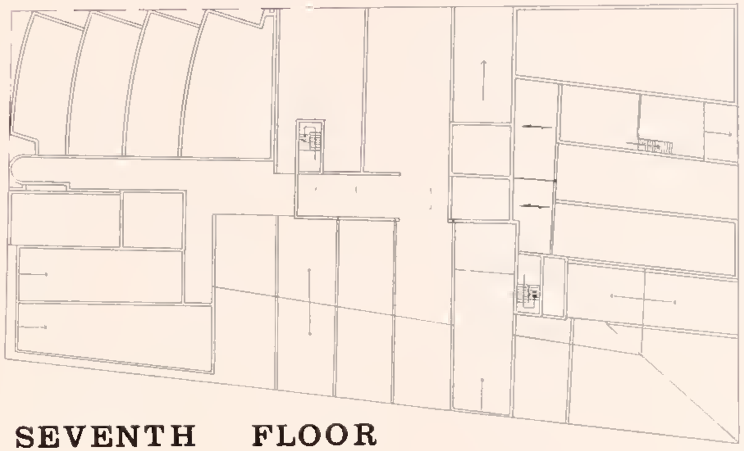
STRUCTURAL PLANS, GROUND THROUGH FOURTH LEVEL



FIFTH FLOOR

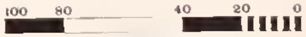


SIXTH FLOOR

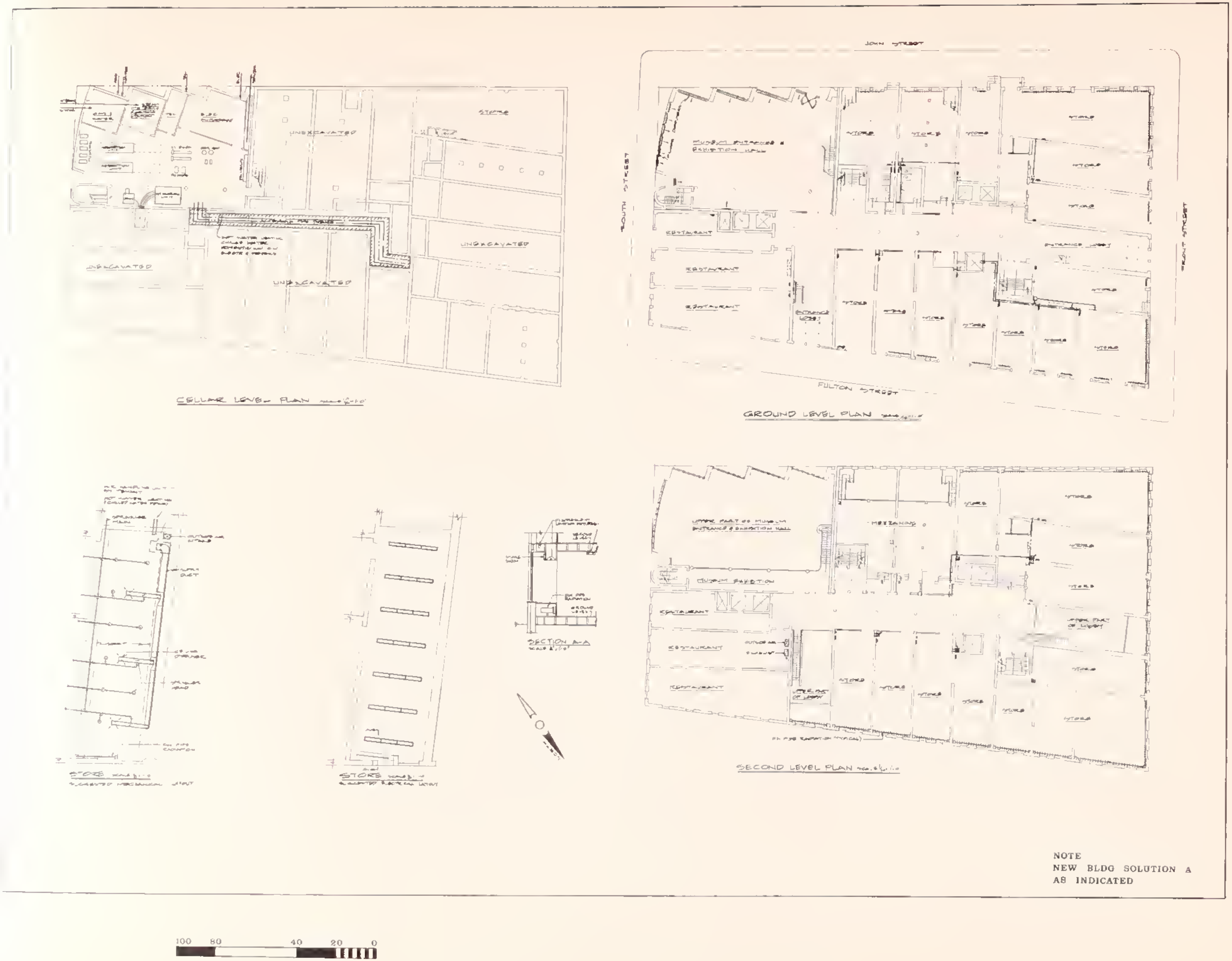


SEVENTH FLOOR

NOTE
NEW BLDG SOLUTION A
AS INDICATED

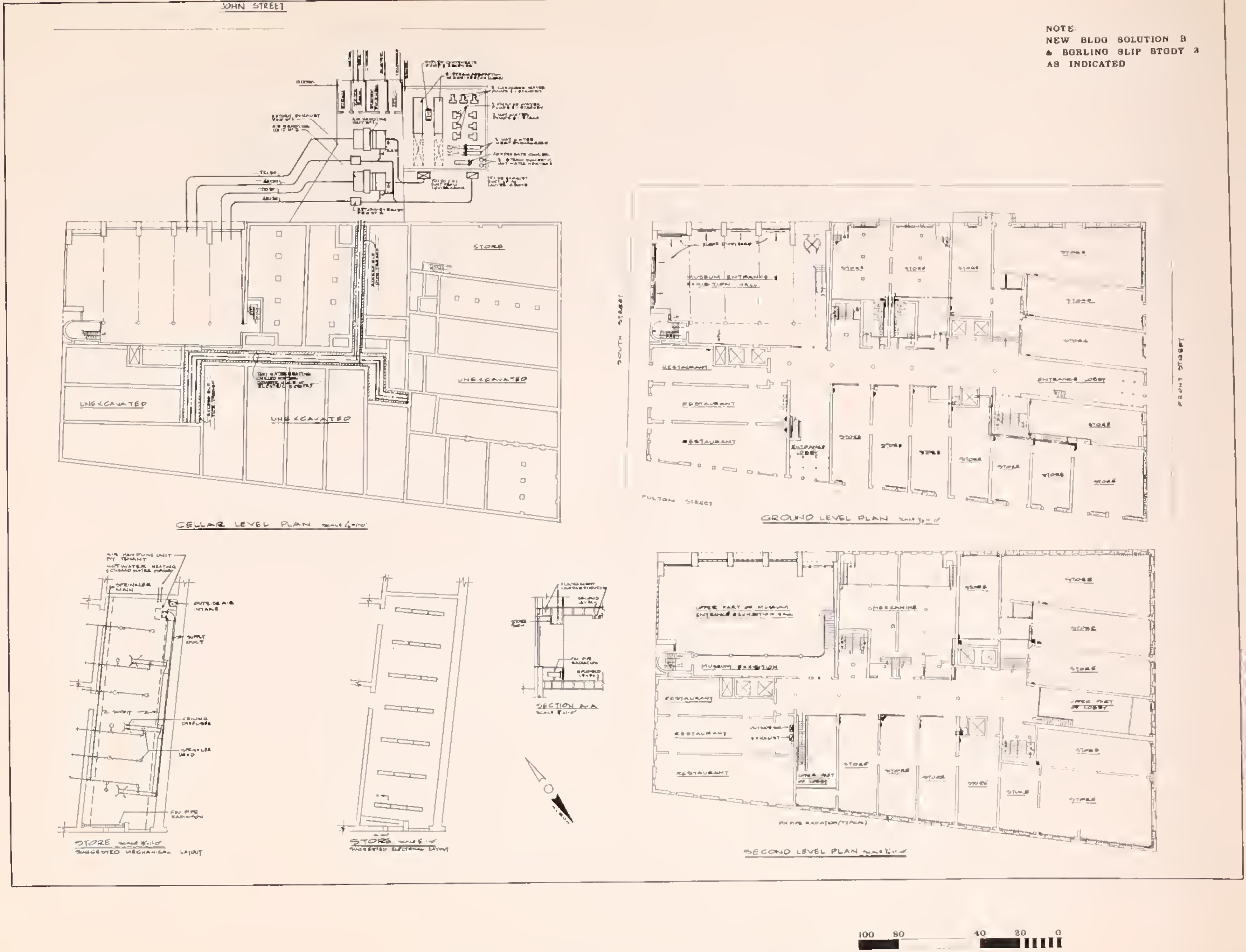


STRUCTURAL PLANS, FIFTH THROUGH SEVENTH LEVEL

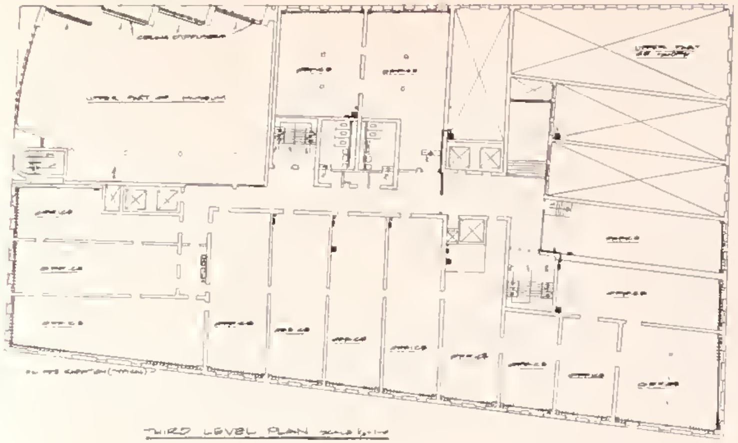


NOTE
NEW BLDG SOLUTION A
AS INDICATED

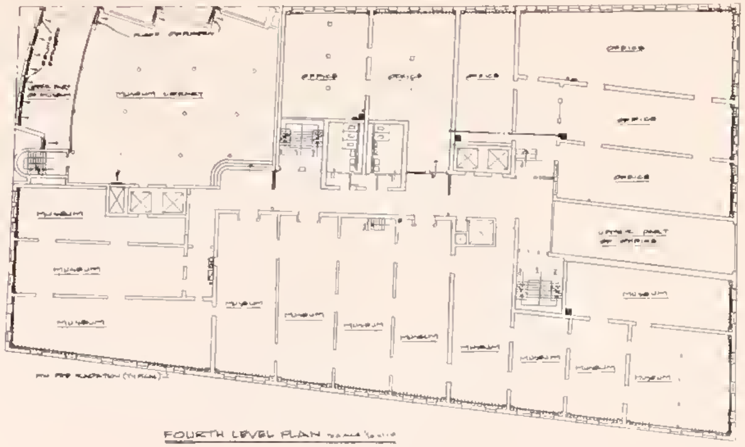
MECHANICAL AND ELECTRICAL PLANS, CELLAR THROUGH SECOND LEVEL



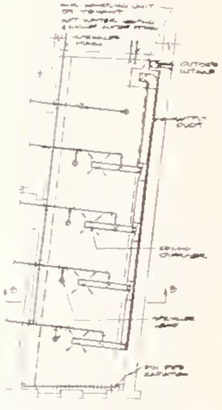
MECHANICAL AND ELECTRICAL PLANS, CELLAR THROUGH SECOND LEVEL



THIRD LEVEL PLAN

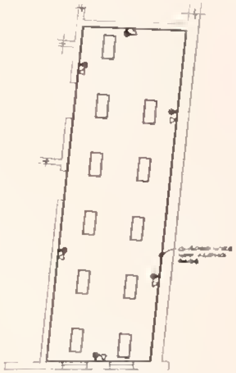


FOURTH LEVEL PLAN



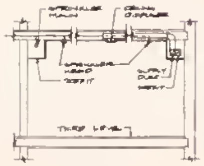
OFFICE

SUGGESTED MECHANICAL LAYOUT

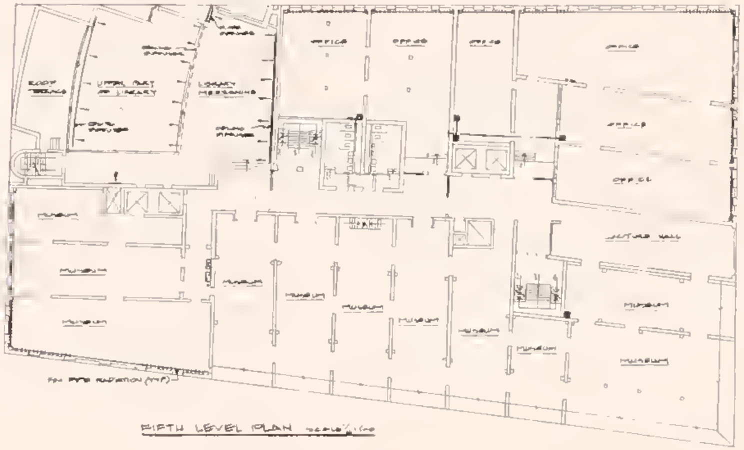


OFFICE

SUGGESTED ELECTRICAL LAYOUT

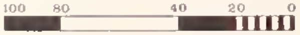


SECTION B-B

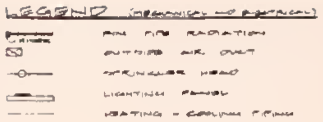


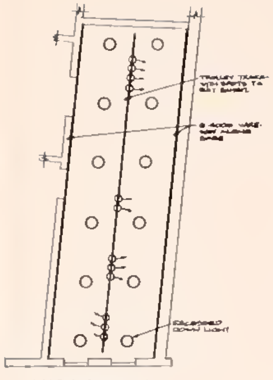
FIFTH LEVEL PLAN

NOTE:
NEW BUILDING SOLUTION A
AS INDICATED

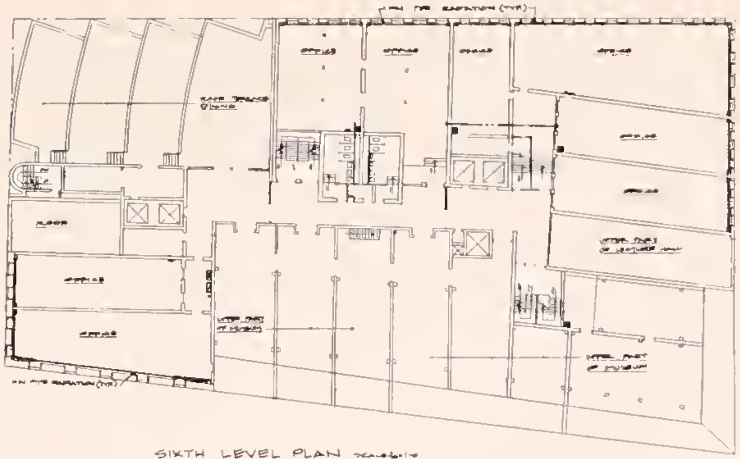


MECHANICAL AND ELECTRICAL PLANS, THIRD THROUGH FIFTH LEVEL

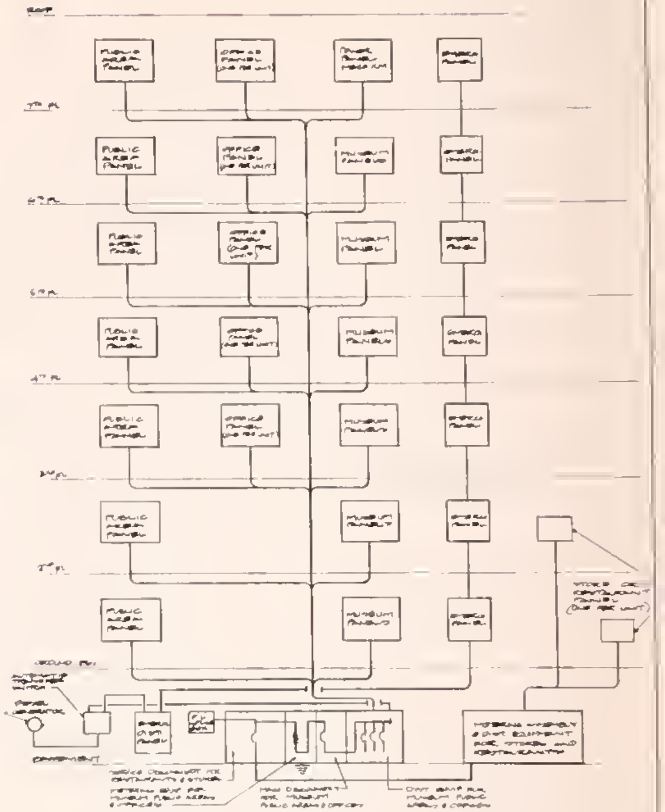




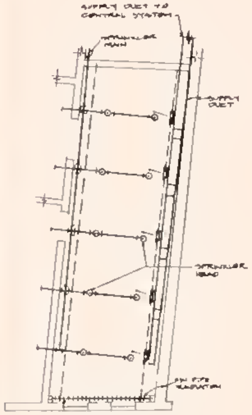
MUSEUM SCALE ¼"=1'-0"
AUGMENTED ELECTRICAL LAYOUT



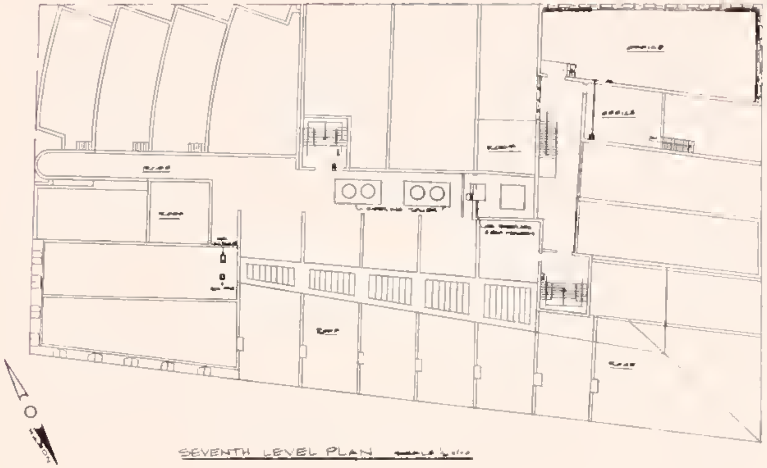
SIXTH LEVEL PLAN



SCHEMATIC ELECTRICAL RISER DIAGRAM
NO SCALE

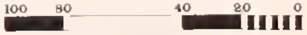


MUSEUM SCALE ¼"=1'-0"
AUGMENTED MECHANICAL LAYOUT



SEVENTH LEVEL PLAN

NOTE:
NEW BLDG SOLUTION A
AS INDICATED



MECHANICAL AND ELECTRICAL PLANS, SIXTH THROUGH SEVENTH LEVEL

BURLING SLIP STUDIES

Burling Slip Study No. 1 109
(Showing new building, Solution A. No work is contemplated on Burling Slip, existing parking to remain with a facility for truck maneuvering on the Slip for the loading docks of the Telephone Building.)

Model, Burling Slip Study No. 2 110

Model, Burling Slip Study No. 2 111

Burling Slip Study No. 2 112

(Showing new building, Solution B. Paving bollard separating traffic, sail cloth arrangements. Stepped terraces, truck maneuvering on John Street and within Telephone Company Building.)

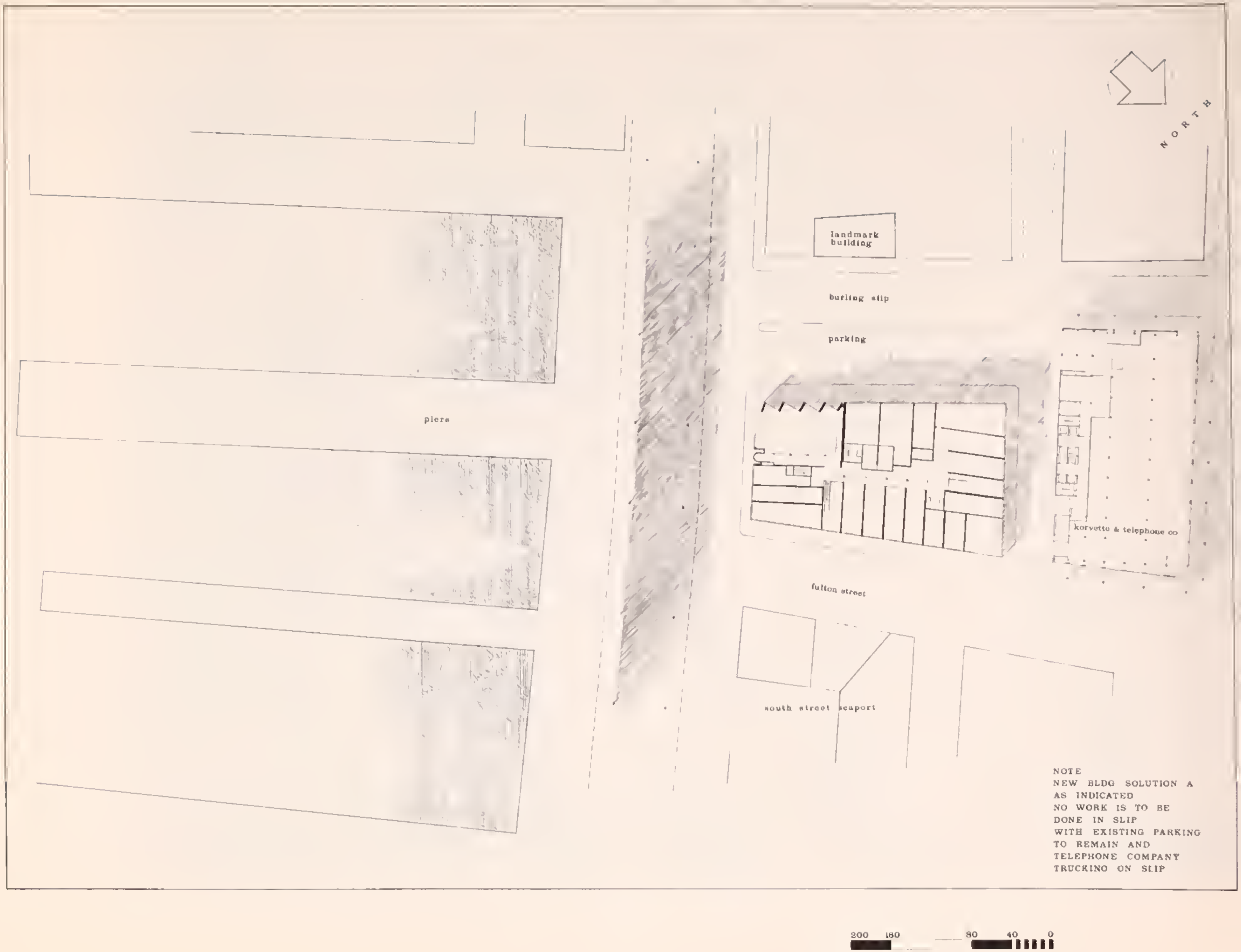
Burling Slip Study No. 3) 113
(Showing new building, Solution B. Stepped terrace used as a device to obtain mechanical equipment space and also as a device to screen, from the Burling exhibitions, the truck maneuvering for the loading docks of the Telephone Company Building.)

Model, Burling Slip Study No. 4 114

Burling Slip Study No. 4 115
(Showing new building, Solution B. Step terraces hiding mechanical equipment space and truck maneuvering space within Telephone Company Building.)

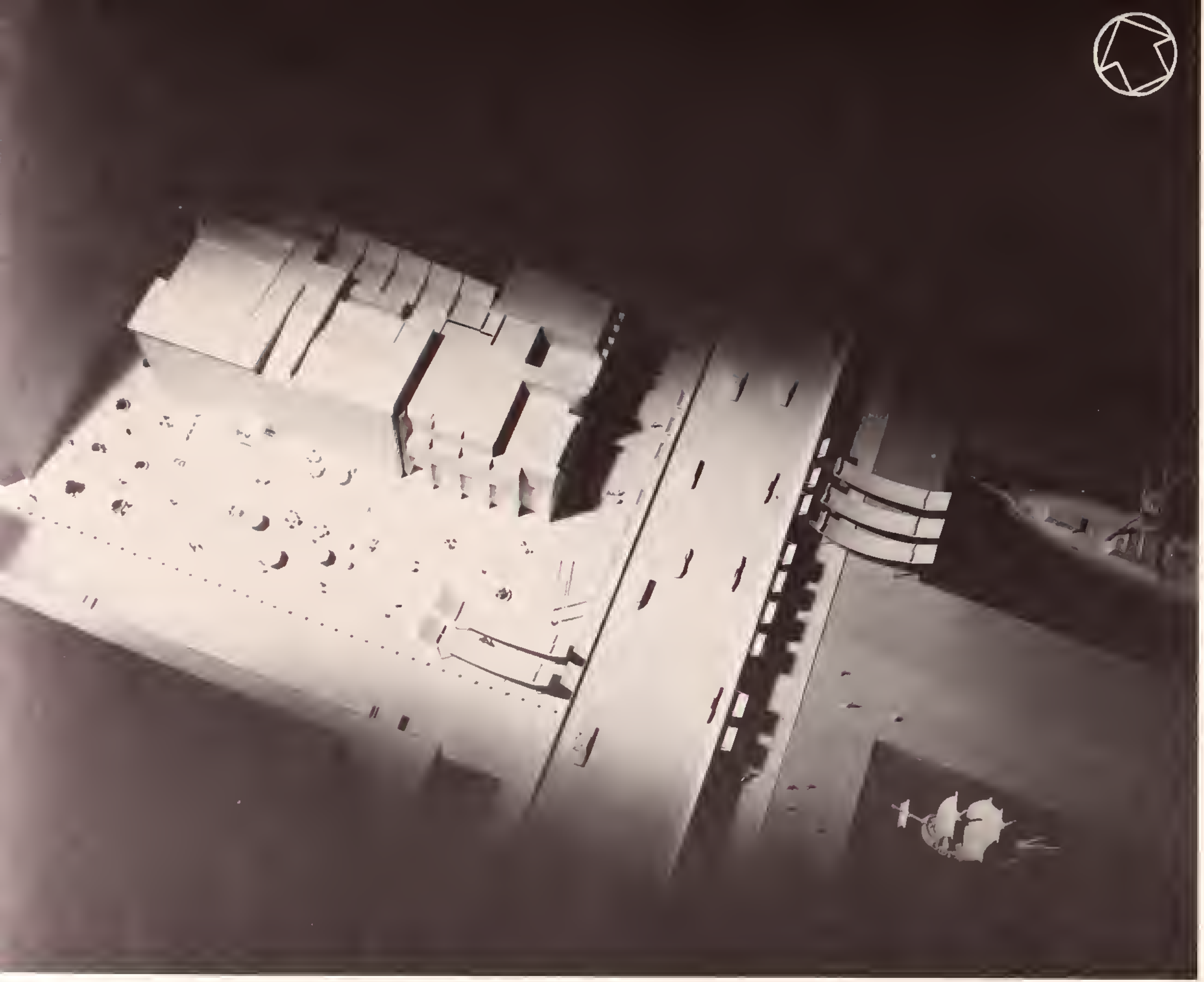
Model, Burling Slip Study No. 5 116

Burling Slip Study No. 5 117
(Showing new building, Solution A. Flat paved plaza with fountains. Truck maneuvering within John Street and Telephone Company Building.)

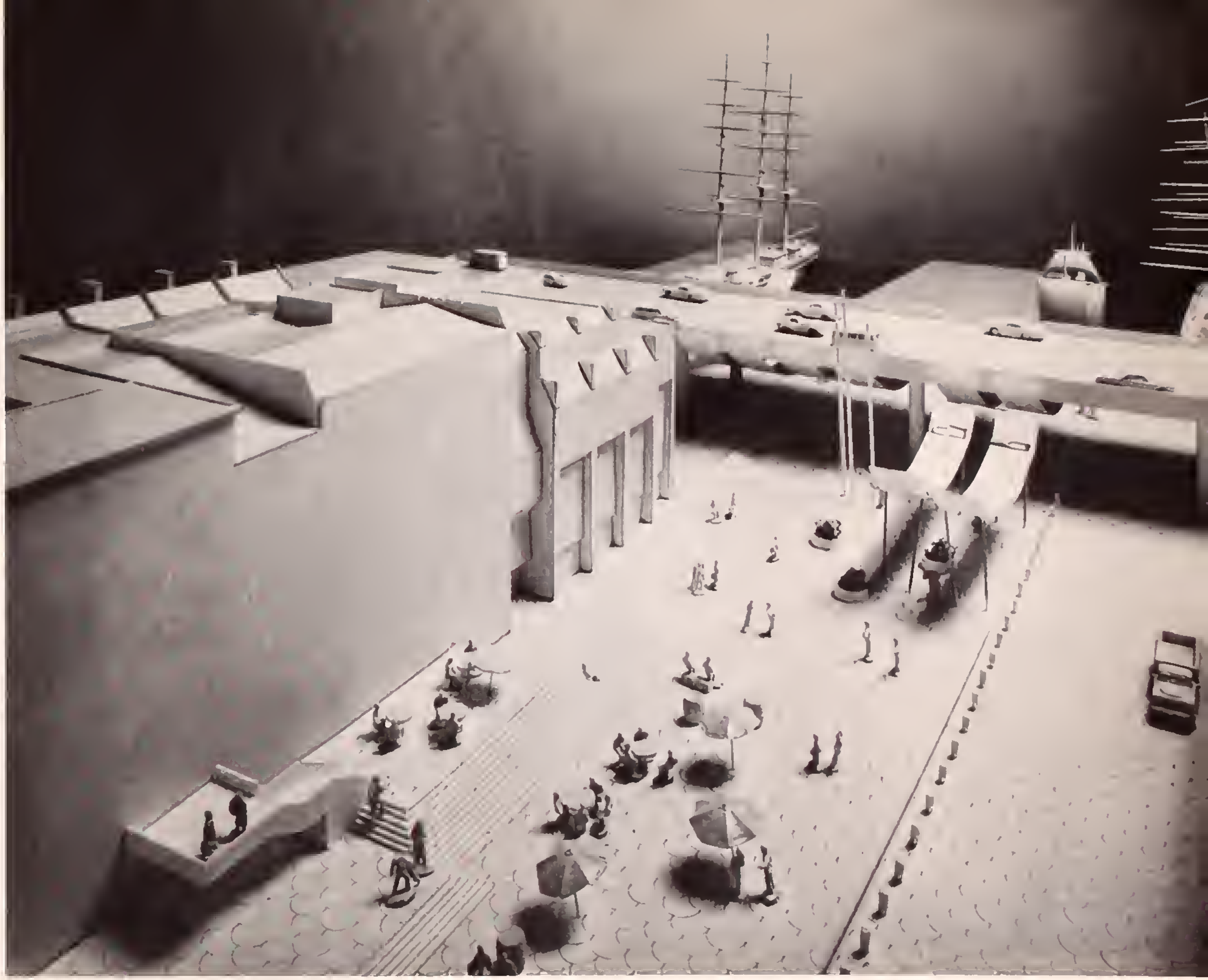


NOTE
NEW BLDG SOLUTION A
AS INDICATED
NO WORK IS TO BE
DONE IN SLIP
WITH EXISTING PARKING
TO REMAIN AND
TELEPHONE COMPANY
TRUCKING ON SLIP

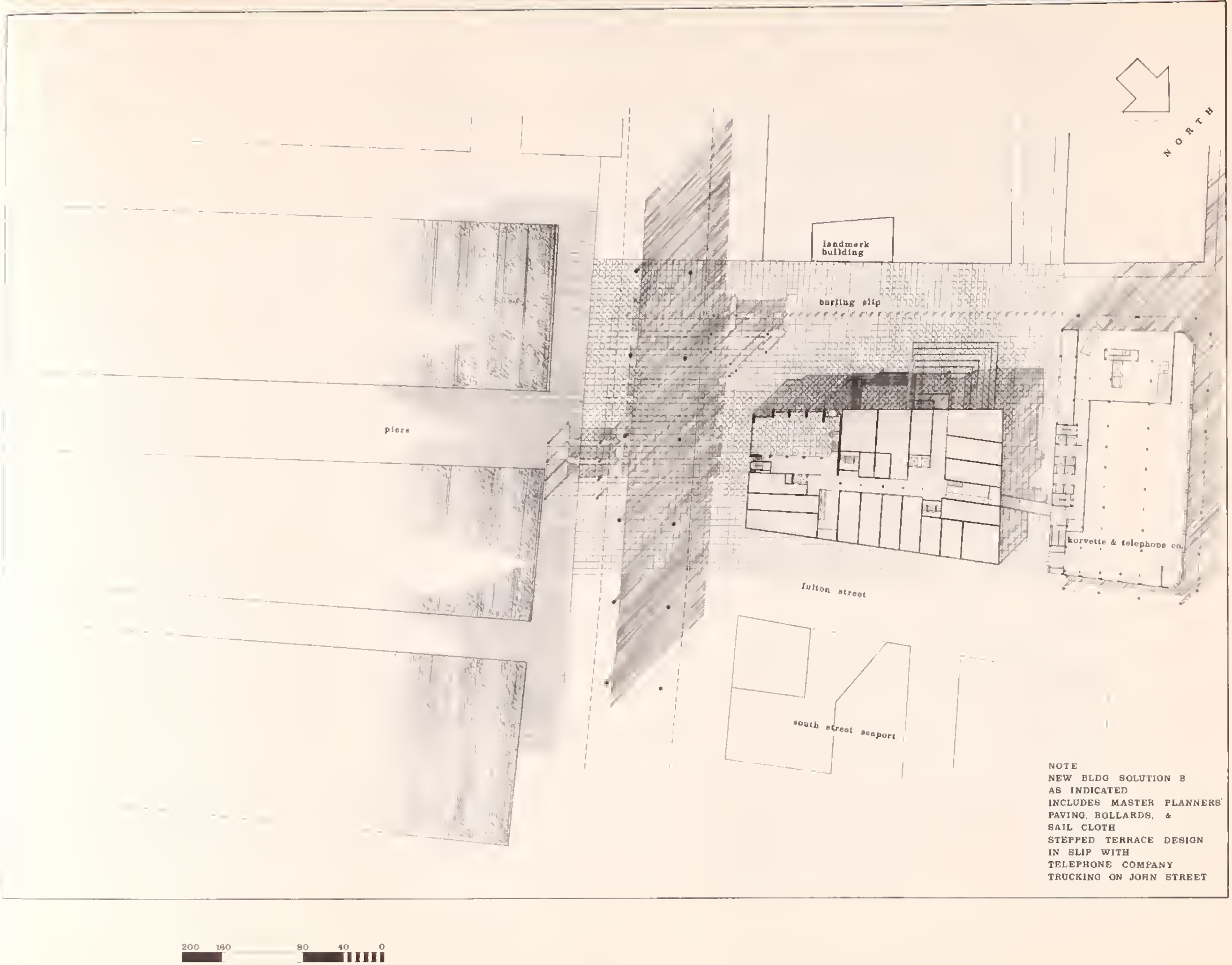
BURLING SLIP STUDY NO. 1



MODEL, BURLING SLIP STUDY NO. 2

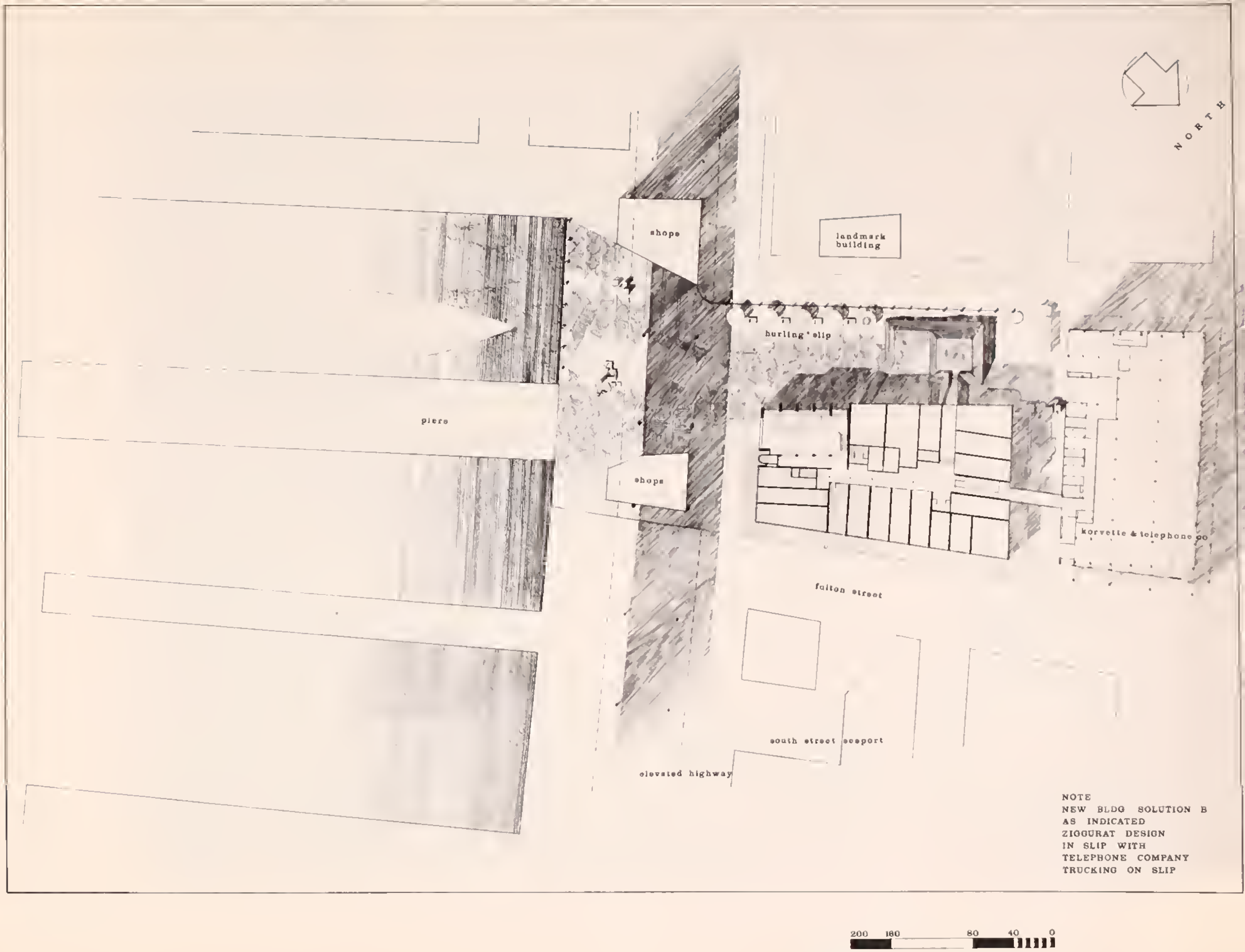


MODEL, BURLING SLIP STUDY NO. 2

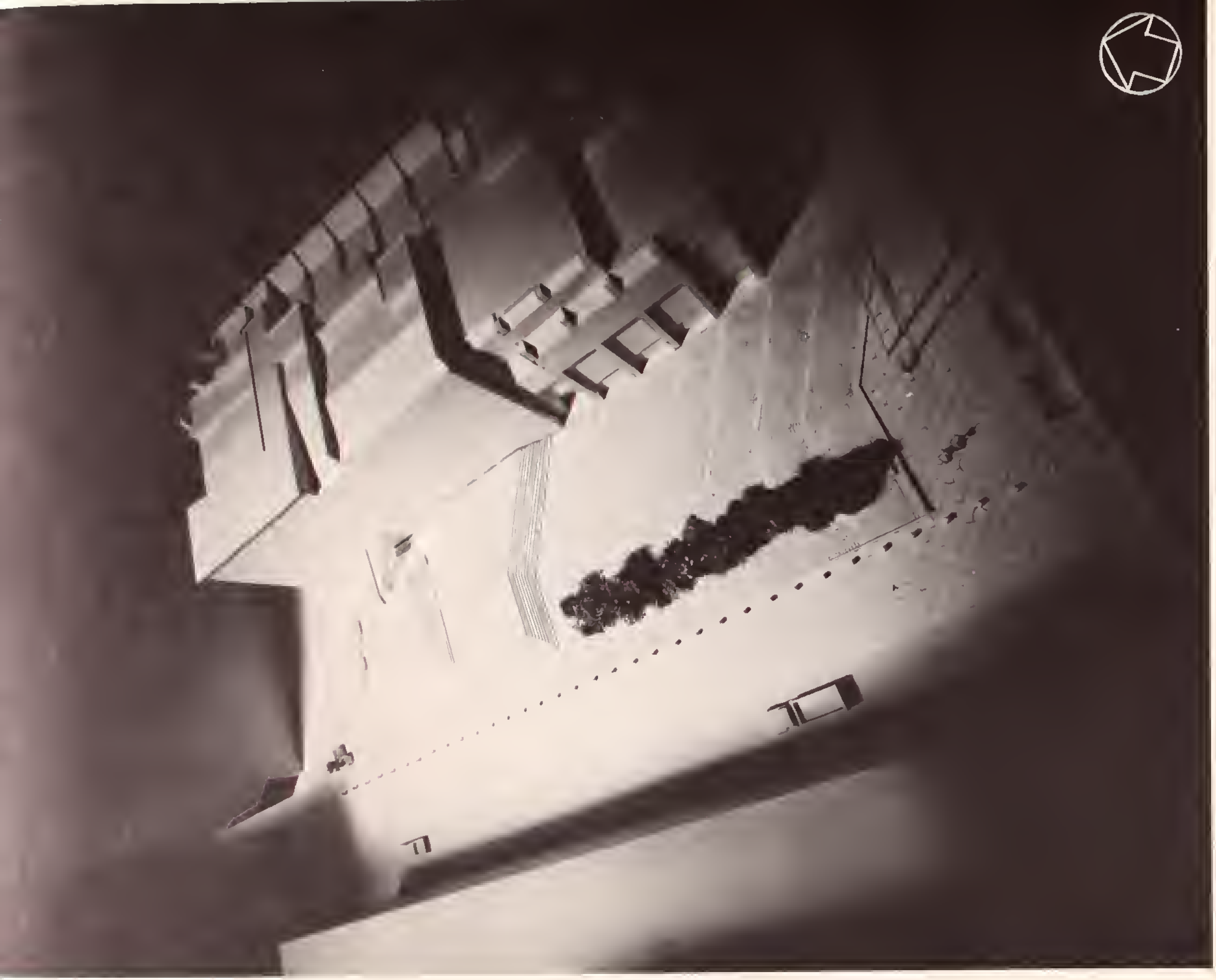


NOTE
NEW BLDG SOLUTION B
AS INDICATED
INCLUDES MASTER PLANNERS'
PAVING, BOLLARDS, &
SAIL CLOTH
STEPPED TERRACE DESIGN
IN SLIP WITH
TELEPHONE COMPANY
TRUCKING ON JOHN STREET

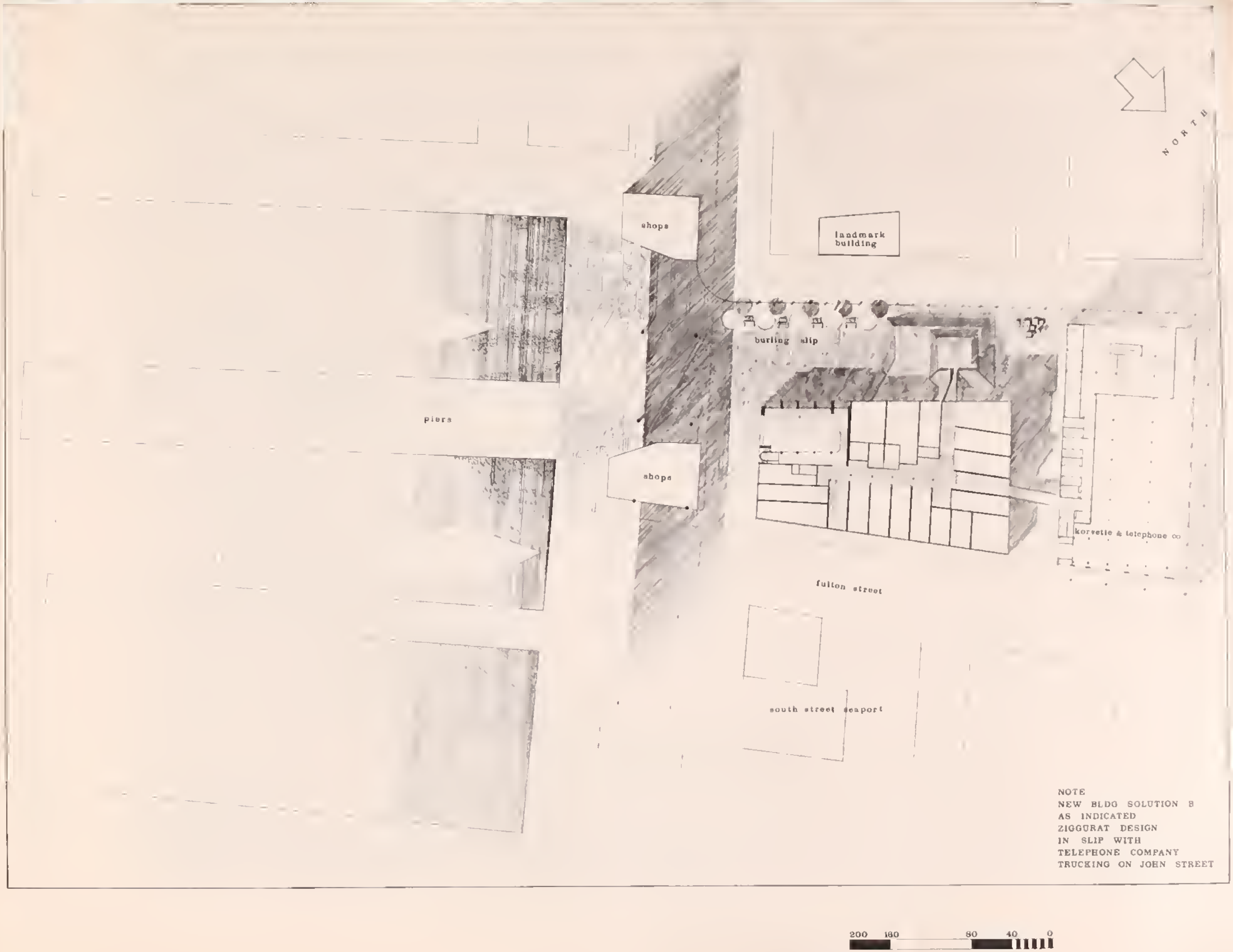
BURLING SLIP STUDY NO. 2



BURLING SLIP STUDY NO. 3

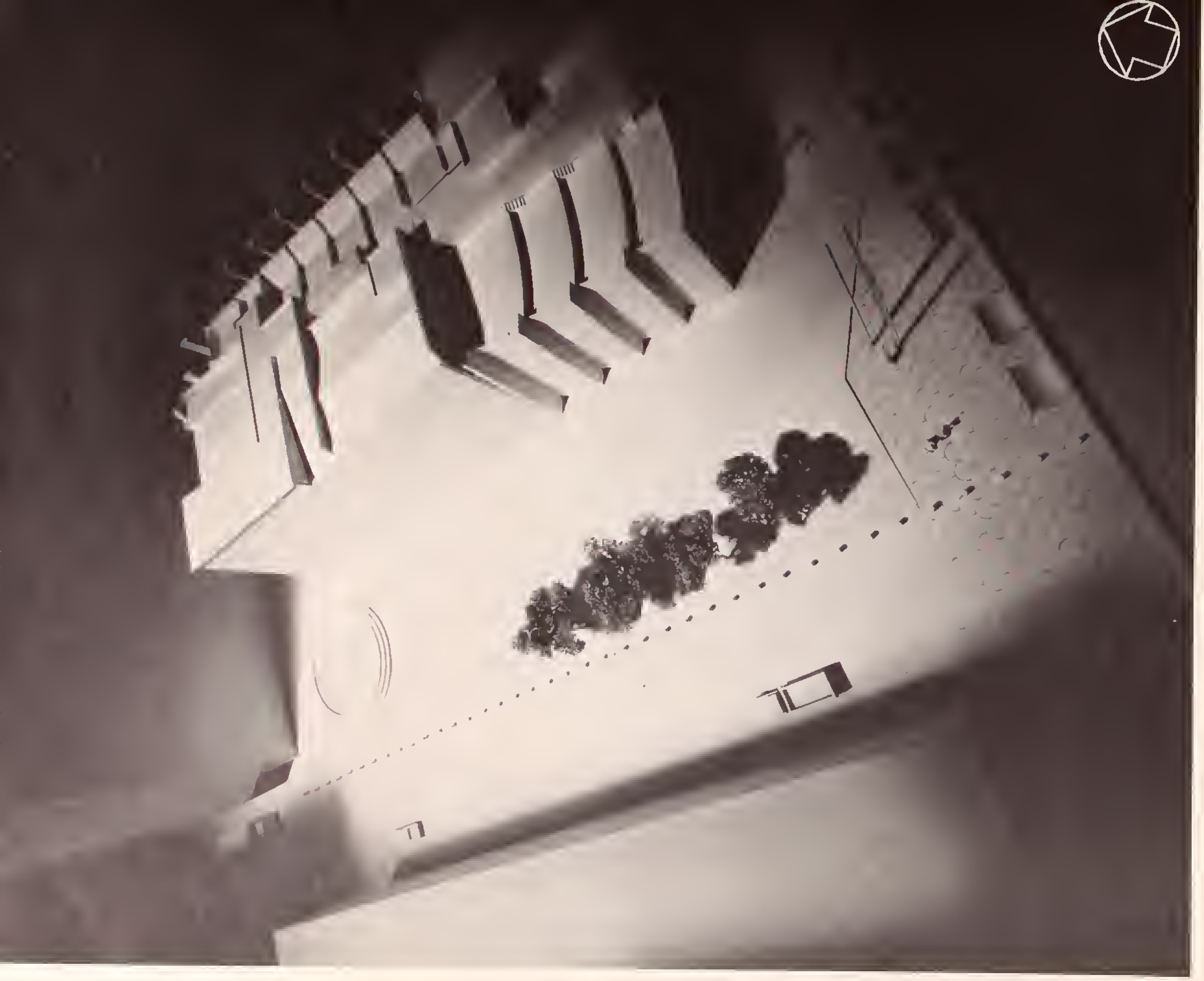


MODEL, BURLING SLIP STUDY NO. 4

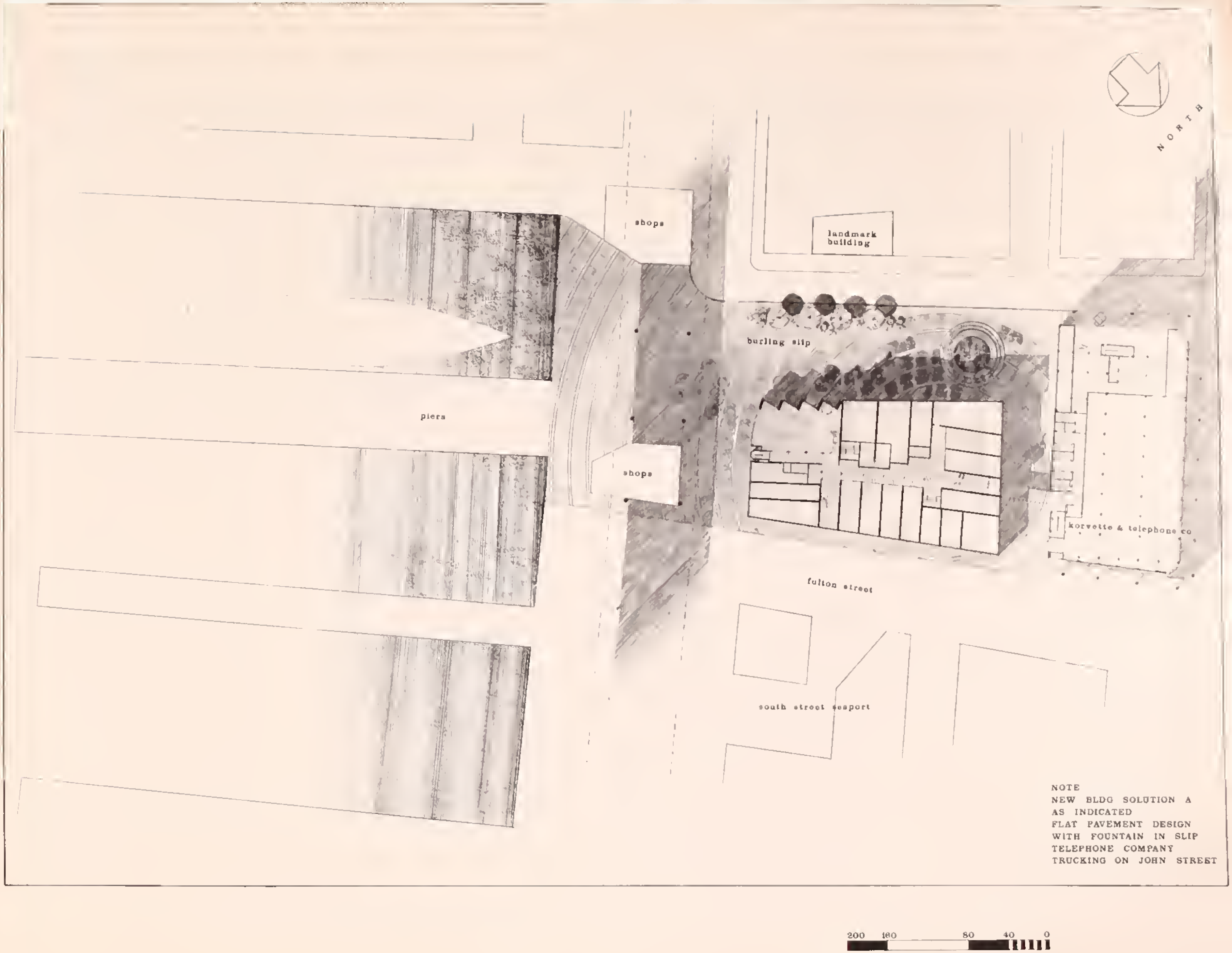


NOTE
NEW BLDG SOLUTION B
AS INDICATED
ZIGGURAT DESIGN
IN SLIP WITH
TELEPHONE COMPANY
TRUCKING ON JOHN STREET

BURLING SLIP STUDY NO. 4



MODEL, BURLING SLIP STUDY NO. 5



NOTE
NEW BLDG SOLUTION A
AS INDICATED
FLAT PAVEMENT DESIGN
WITH FOUNTAIN IN SLIP
TELEPHONE COMPANY
TRUCKING ON JOHN STREET

BURLING SLIP STUDY NO. 5